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2 GLOBAL OVERVIEW OF DRUG DEMAND AND SUPPLY

WORLD DRUG REPORT 2019

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PREFACE

The findings of this year's *World Drug Report* fill in and further complicate the global picture of drug challenges, underscoring the need for broader international cooperation to advance balanced and integrated health and criminal justice responses to drug supply and demand.

With improved research and more precise data from India and Nigeria – both among the 10 most-populous countries in the world – we see that there are many more opioid users and people with drug use disorders than previously estimated. Globally, some 35 million people, up from an earlier estimate of 30.5 million, suffer from drug use disorders and require treatment services. The death toll is also higher: 585,000 people died as a result of drug use in 2017.

Prevention and treatment continue to fall far short of needs in many parts of the world. This is particularly true in prisons, where those incarcerated are especially vulnerable to drug use and face higher risks of HIV and hepatitis C transmission. This gap represents a major impediment to achieving the Sustainable Development Goals and fulfilling the international community's pledge to leave no one behind.

Synthetic opioids continue to pose a serious threat to health, with overdose deaths rising in North America and trafficking in fentanyl and its analogues expanding in Europe and elsewhere. The opioid crisis that has featured in far fewer headlines but that requires equally urgent international attention is the non-medical use of the painkiller tramadol, particularly in Africa. The amount of tramadol seized globally reached a record 125 tons in 2017; the limited data available indicate that the tramadol being used for non-medical purposes in Africa is being illicitly manufactured in South Asia and trafficked to the region, as well as to parts of the Middle East.

The response to the misuse of tramadol illustrates the difficulties faced by countries in balancing necessary access for medical purposes while curbing abuse – with limited resources and health-care systems that are already struggling to cope – and at the same time clamping down on organized crime and trafficking.

Opium production and cocaine manufacture remain at record levels. The amounts intercepted are also higher than ever, with the amount of cocaine seized up 74 per cent over the past decade, compared with a 50 per cent rise in manufacture during the same period. This suggests that law enforcement efforts have become more effective and that strengthened international cooperation may be helping to increase interception rates.

The *World Drug Report 2019* also registers a decline in opiate trafficking from Afghanistan along the "northern" route through Central Asia to the Russian Federation. In 2008, some 10 per cent of the morphine and heroin intercepted globally was seized in countries along the northern route; by 2017 it had fallen to 1 per cent. This may be due in part to a shift in demand to synthetics in destination markets. The increased effectiveness of regional responses may also play a role.

Countries in central Asia, with the support of the United Nations Office on Drugs and Crime (UNODC), have committed considerable resources to strengthening regional cooperation through integrated UNODC country, regional and global programmes, as well as through platforms such as the Central Asian Regional Information and Coordination Centre, the Afghanistan–Kyrgyzstan–Tajikistan Initiative and the Triangular Initiative and its Joint Planning Cell. More research is needed, including to identify lessons learned and best practices that could inform further action.

International cooperation has also succeeded in checking the growth in new psychoactive substances. The Vienna-based Commission on Narcotic Drugs has acted swiftly in recent years to schedule the most harmful new psychoactive substances, and the UNODC early warning advisory has helped to keep the international community abreast of developments.

Political will and adequate funding remain prerequisites for success. Efforts by Colombia to reduce cocaine production following the 2016 peace deal

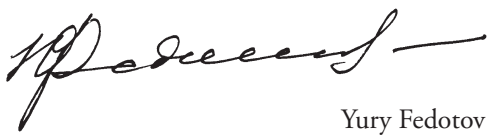
with the Revolutionary Armed Forces of Colombia (FARC) are a case in point. Alternative development initiatives have enabled farmers in central areas of the country previously under FARC control to abandon coca bush cultivation and join the licit economy. The result has been a drastic reduction in cocaine production. However, in other areas previously controlled by FARC, criminal groups have moved in to fill the vacuum and expand cultivation. Alternative development can succeed, but not without sustained attention and integration into broader development goals.

The successes identified amid the many, formidable problems that countries continue to face in grappling with drug supply and demand highlight that international cooperation works. The challenge before us is to make this cooperation work for more people.

International cooperation is based on agreed frameworks. Nearly every country in the world has reaffirmed its commitment to balanced, rights-based action based on the international drug control conventions. The most recent reaffirmation of that commitment is the Ministerial Declaration on Strengthening Our Actions at the National, Regional and International Levels to Accelerate the Implementation of Our Joint Commitments to Address and Counter the World Drug Problem, adopted at the ministerial segment of the sixty-second session of the Commission on Narcotic Drugs.

UNODC supports countries in putting their commitments into action through the application of international standards on the prevention and treatment of drug use disorders and HIV, as well as standards and norms on the administration of justice and the treatment of prisoners. We provide tailored technical assistance through our field offices and global programmes, and through toolkits and research.

I hope the *World Drug Report 2019* will shed further light on the world drug problem and inform international community responses. By working together and focusing attention and resources, we can help people get the services they need without discrimination, promote security and bring criminals to justice, safeguard health and achieve the Sustainable Development Goals.



Yury Fedotov
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CONTENTS

BOOKLET 1 EXECUTIVE SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS

BOOKLET 2 GLOBAL OVERVIEW OF DRUG DEMAND AND SUPPLY

PREFACE 1
EXPLANATORY NOTES 5
SCOPE OF THE BOOKLET 7
DRUG DEMAND 9
Extent of drug use *10*
Health consequences of drug use *19*
Drug use, infectious diseases and the provision of prevention and treatment services in prison settings *32*
DRUG SUPPLY 43
ANNEX 59
GLOSSARY 75
REGIONAL GROUPINGS 77

BOOKLET 3 DEPRESSANTS

BOOKLET 4 STIMULANTS

BOOKLET 5 CANNABIS AND HALLUCINOGENS

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EXPLANATORY NOTES

The boundaries and names shown and the designations used on maps do not imply official endorsement or acceptance by the United Nations. A dotted line represents approximately the line of control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Disputed boundaries (China/India) are represented by cross-hatch owing to the difficulty of showing sufficient detail.

The designations employed and the presentation of the material in the *World Drug Report* do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities or concerning the delimitation of its frontiers or boundaries.

Countries and areas are referred to by the names that were in official use at the time the relevant data were collected.

All references to Kosovo in the *World Drug Report*, if any, should be understood to be in compliance with Security Council resolution 1244 (1999).

Since there is some scientific and legal ambiguity about the distinctions between "drug use", "drug misuse" and "drug abuse", the neutral term "drug use" is used in the *World Drug Report*. The term "misuse" is used only to denote the non-medical use of prescription drugs.

All uses of the word "drug" and the term "drug use" in the *World Drug Report* refer to substances controlled under the international drug control conventions, and their non-medical use.

All analysis contained in the *World Drug Report* is based on the official data submitted by Member States to the UNODC through the annual report questionnaire unless indicated otherwise.

The data on population used in the *World Drug Report* are taken from: *World Population Prospects: The 2017 Revision* (United Nations, Department of Economic and Social Affairs, Population Division).

References to dollars ($) are to United States dollars, unless otherwise stated.

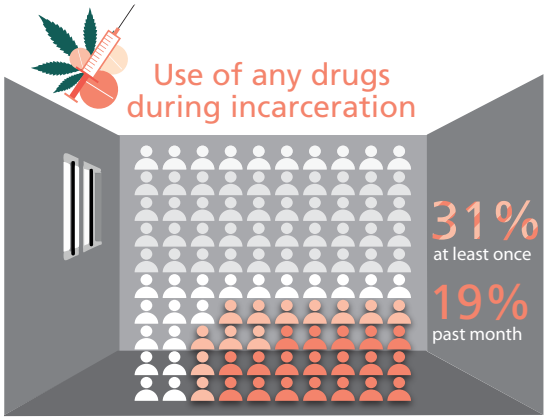
References to tons are to metric tons, unless otherwise stated.

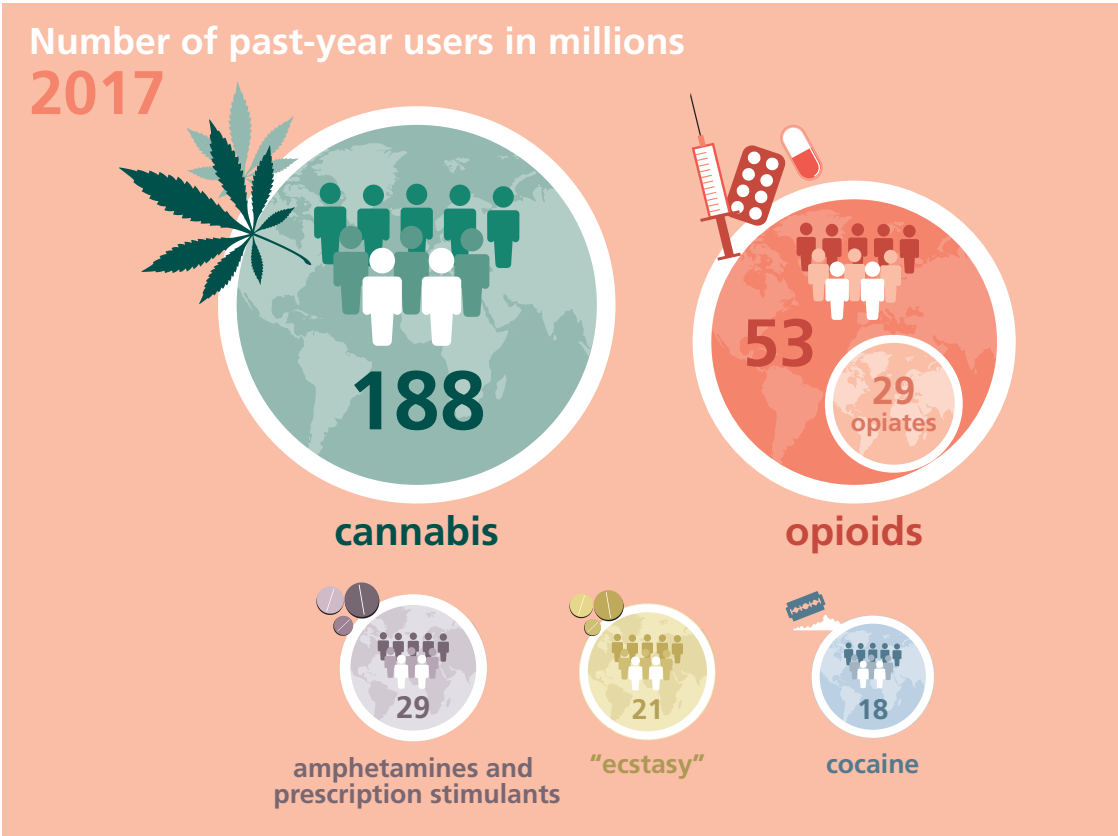
The following abbreviations have been used in the present booklet:

AIDS	acquired immunodeficiency syndrome
ATS	amphetamine-type stimulants
DALY	disability-adjusted life year
EMCDDA	European Monitoring Centre for Drugs and Drug Addiction
Europol	European Union Agency for Law Enforcement Cooperation
GBL	*gamma*-butyrolactone
GHB	*gamma*-hydroxybutyric acid
HIV	human immunodeficiency virus
LSD	lysergic acid diethylamide
NPS	new psychoactive substances
PWID	people who inject drugs
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNODC	United Office on Drugs and Crime
WHO	World Health Organization

SCOPE OF THE BOOKLET

This booklet constitutes the second chapter of the *World Drug Report 2019*. It provides a global overview of the extent of and trends in drug use, including drug use disorders, and its health consequences, and examines the global extent of deaths and years of "healthy" life lost attributable to drug use. The present booklet also examines drug use, infectious diseases and the provision of prevention and treatment services in prison settings. The final section of the booklet contains a global overview of the latest estimates of and trends in drug cultivation, production and trafficking of drugs, including on the Internet via the darknet.





DRUG DEMAND

Extent of drug use

More than a quarter of a billion people use drugs

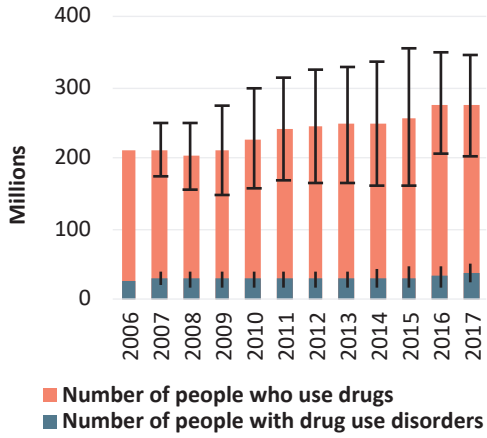
In 2017, an estimated 271 million people worldwide aged 15–64 had used drugs at least once in the previous year (range: 201 million to 341 million). This corresponds to 5.5 per cent of the global population aged 15–64 (range: 4.1 to 6.9 per cent), representing one in every 18 people.

In 2009, the past-year prevalence of drug use globally was estimated to be lower, at 4.8 per cent. Between 2009 and 2017, the estimated number of past-year users of any drug globally changed from 210 million to 271 million, or by 30 per cent, in part as a result of global population growth (the global population aged 15–64 increased by 10 per cent). Data show a higher prevalence over time of the use of opioids in Africa, Asia, Europe and North America, and in the use of cannabis in North America, South America and Asia. It should be noted, however, that any comparison of estimates over time should be undertaken with caution, given the wide uncertainty intervals of the estimates.

Over the last decade, there has been a diversification of the substances available on the drug markets. In addition to traditional plant-based substances – cannabis, cocaine and heroin – the last decade has witnessed the expansion of a dynamic market for synthetic drugs and the non-medical use of prescription medicines. More potent drugs are available and the increasing number of substances, and their potential combinations, poses a greater risk.

In recent years, hundreds of NPS have been synthesized. The majority are stimulants, followed by cannabinoids and an increasing number of opioids, with unpredictable and sometimes severe negative consequences, including death. The non-medical use of pharmaceutical opioids is of increasing concern. In North America, the use of synthetic opioids such as fentanyl (and fentanyl analogues) resulted in the continued dramatic increase in opioid overdose deaths in 2017. In other subregions, such as West and Central Africa and North Africa, based on seizures, the market for the non-medical use of tramadol has grown considerably. The first, large-scale national drug use survey conducted in Nigeria, in 2017, found a high prevalence of the non-medical use of prescription opioids (mainly tramadol), which was second only to the use of cannabis, with a past-year prevalence of 4.7 per cent.[1]

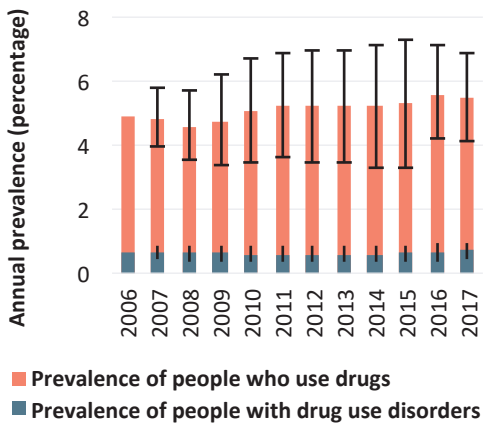
FIG. 1 Global trends in the estimated number of people who use drugs and those with drug use disorders, 2006–2017



Source: UNODC, responses to the annual report questionnaire.

Note: Estimates of people who use drugs are for adults (aged 15–64) who used drugs in the past year.

FIG. 2 Global trends in the estimated prevalence of drug use and drug use disorders, 2006–2017



Source: UNODC, responses to the annual report questionnaire.

Note: Estimated percentage of the annual prevalence of drug use is for adults (aged 15–64) who used drugs in the past year.

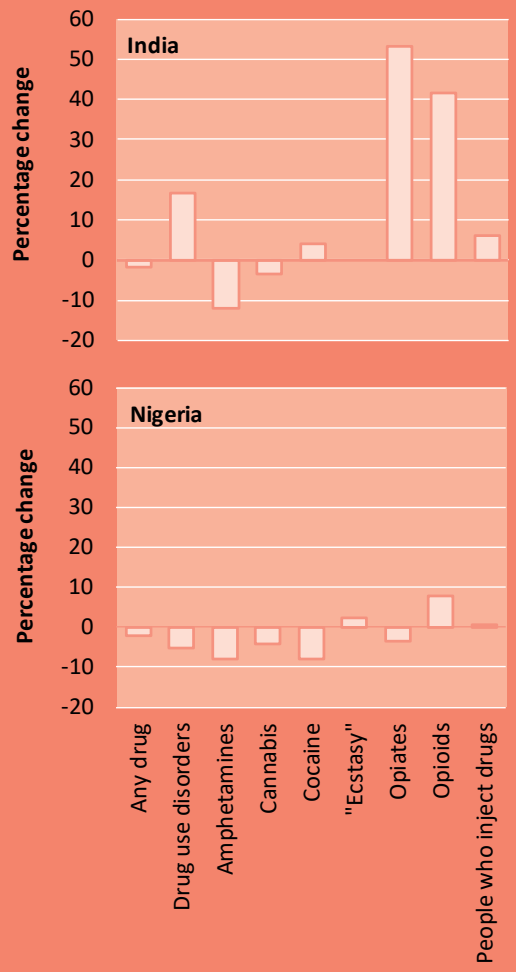
1 UNODC, *Drug Use in Nigeria 2018* (Vienna, 2019).

Recent drug use surveys in Nigeria and India: enhancing understanding of the extent of drug use in Africa and Asia and globally

National drug use surveys that were conducted in India in 2018[a] and Nigeria in 2017[b] have considerably improved understanding of the extent of drug use in these two highly populated countries. Because of their large populations, Nigeria and India exert a considerable influence over regional, as well as global, estimates of drug use. Nigeria is the most populous country in Africa, accounting for 38 per cent of the population aged 15–64 in West and Central Africa and 15 per cent of the population of Africa as a whole, while 86 per cent of the population in South Asia and 30 per cent of the population in Asia reside in India.

Survey findings from India have revealed a higher prevalence of the use of opioids and opiates in Asia than previously estimated for the region. At 1.0 per cent, the past-year prevalence of the use of opioids in Asia was higher in 2017 than in 2016, when it was 0.5 per cent, representing a change of 117 per cent in the number of past-year users from 13.6 million to 29.5 million. While, at 0.7 per cent, the prevalence of the use of opiates in Asia was also estimated to be higher in 2017 than in 2016, when it was 0.4 per cent, corresponding to a change in the number of past-year users from 11.2 million to 21.7 million. Likewise, in Africa, the past-year prevalence of the use of opioids was estimated to be higher in 2017 (0.9 per cent) than in 2016 (0.3 per cent), corresponding to a change in the number of past-year users from 2.2 million to 6.1 million, or of 178 per cent. The updated global estimates of the use of opioids and opiates reflect new information from five countries, but the main changes from previous global estimates result from the new surveys conducted in Nigeria and India.

Impact of new survey findings from India and Nigeria on global estimates of the number of past-year users, by drug type, and people who inject drugs



Note: The bars show the percentage change in the 2017 global estimates of past-year drug users compared with what the 2017 global estimates would have been had the surveys not been conducted.

Conversely, survey findings from India and Nigeria have led to lower regional estimates of the use of amphetamines in Africa and Asia, as well as globally. In Africa, the past-year prevalence was estimated to be lower in 2017 (0.5 per cent) than in 2016 (0.9 per cent), resulting in fewer past-year users in 2017 (3.7 million) than in 2016 (6.0 million), while in Asia the prevalence was estimated at 0.5 per cent in 2017 and 0.6 per cent in 2016, a change in the number of past-year users from 17.5 million in 2016 to 14.1 million in 2017. As for opioids and opiates, while updated information on the use of amphetamines was available for five countries, most of the change in the global estimates are the result of the surveys conducted in Nigeria and India.

Estimates for the past-year prevalence of cocaine use were also lower in Africa in 2017 (0.2 per cent) than in 2016 (0.5 per cent), with correspondingly fewer past-year users estimated in 2017 (1.3 million) compared with 2016 (3.2 million). Nigeria was the only country in Africa with new or updated information on the prevalence of the use of cocaine.

Prior to these surveys, there were no recent survey data available for Nigeria or India on the past-year prevalence of drug use and regional estimates for Africa and Asia were constructed on the basis of data available from other countries in those regions.

The survey conducted in India in 2018 involved interviews with more than 500,000 individuals across all 36 states and territories. A combination of two data collection approaches was employed: a household survey among a nationally representative sample of 473,569 individuals aged 10–75; and a respondent-driven sampling survey of 72,642 people with drug dependence, incorporating treatment multiplier methods. The survey also estimated the number of PWID as 850,000, which compares to a previous estimate of 177,000 in 2008 by the National AIDS Control Organization, based on mapping conducted in urbanized areas in 17 states.

The first comprehensive nationwide drug use survey conducted in Nigeria, in 2017, employed both a household survey of 38,850 respondents, incorporating network scale-up methods, and a high-risk drug user survey of 9,344 problem drug users using respondent-driven sampling and multiplier benchmark methods. The results of the survey highlighted a considerable level of past-year use of psychoactive substances. Cannabis was the most commonly use drug followed by opioids, mainly the non-medical use of prescription opioids (predominantly tramadol). The survey placed Nigeria among the countries with the highest prevalence of the non-medical use of opioids globally.

These two recent surveys, of high scientific quality, have led to major improvements in the data coverage of the populations in their respective regions. The new survey in India (in particular) and Nigeria have had a considerable influence on estimates of the extent of drug use globally. The impact is seen especially for opioids and opiates, which have also influenced global estimates of the number of people suffering from drug use disorders. New data from India has also impacted on global estimates of PWID.

[a] Atul Ambekar and others, *Magnitude of Substance Use in India 2019* (New Delhi, Ministry of Social Justice and Empowerment, 2019.

[b] United Nations Office on Drugs and Crime (UNODC) and government of Nigeria, Drug Use in Nigeria 2018 (Vienna, 2019).

Some 35 million people suffer from drug use disorders

Among the estimated 271 million past-year users of any drug, some 35.0 million (range: 23.0 million to 47.0 million), or almost 13 per cent, are estimated to suffer from drug use disorders, meaning that their drug use is harmful to the point where they may experience drug dependence and/or require treatment. This corresponds to a prevalence of drug use disorders of 0.71 per cent (range: 0.47 to 0.95 per cent) globally among the population aged 15–64.

Between 2009 and 2016, the prevalence of drug use disorders remained essentially stable globally, with the number of people suffering from drug use disorders changing over that period in line with population growth. However, in 2017, the prevalence of drug use disorders (0.71 per cent) was higher than previously estimated (0.62 per cent in 2016), corresponding to a change in the estimated number of people suffering from drug use disorders from 30.5 million to 35.0 million. This higher prevalence is the result of the findings of drug use surveys conducted recently in two highly populated countries, Nigeria and India (see box). Given the wide uncertainty intervals of the estimates, comparisons over time should be undertaken with caution.

Cannabis remains by far the most commonly used drug

Worldwide, there were an estimated 188 million past-year users of cannabis in 2017, corresponding to 3.8 per cent of the global population aged 15–64. The annual prevalence of the use of cannabis is highest in North America (13.8 per cent), Oceania (10.9 per cent) and West and Central Africa (10.0 per cent).

In 2010, cannabis use, particularly among young people, was reported as stabilizing or declining in countries with established cannabis markets, such as in Western and Central Europe, North America and parts of Oceania (Australia and New Zealand), but that trend was offset by increasing consumption in many countries in Africa and Asia. While cannabis use in Western and Central Europe is still reported as stabilizing, it has increased considerably in the Americas, Africa and Asia.

Opioids present the greatest harm to the health of users

Opioids are a major concern in many countries because of the severe health consequences associated with their use. For example, in 2017, the use of opioids accounted for 110,000 (66 per cent) of the 167,000 deaths attributed to drug use disorders.[2] The opioid crisis continues in North America, reaching new highs in the number of opioid overdose deaths in the United States of America and Canada, with the increases largely attributed to the use of fentanyl and its analogues.

There were an estimated 53.4 million past-year users of opioids (both persons who use opiates and persons who use prescription opioids for non-medical purposes) globally in 2017. This corresponds to 1.1 per cent of the global population aged 15–64. The number of past-year users of opioids globally is 56 per cent higher than the previously estimated 34.3 million in 2016. The change is the result of an improvement in the understanding of the extent of drug use based on recent surveys conducted in Nigeria and India (see the box on the previous page). The subregions with the highest past-year prevalence of use of opioids were North America (4.0 per cent), Oceania (3.3 per cent for Australia and New Zealand), the Near and Middle East and South-West Asia (2.3 per cent) and South Asia (1.8 per cent).

While global estimates are not available, the non-medical use of pharmaceutical opioids is reported in many countries, for example, in West and North Africa and in the Near and Middle East (tramadol), and in North America (hydrocodone, oxycodone, codeine, tramadol and fentanyl). There are also signs of increasing non-medical use of pharmaceutical opioids in Western and Central Europe, as reflected in the increasing proportion of admissions to treatment for the use of those substances.

The results of the first large-scale nationwide drug use survey conducted in Nigeria in 2017, the most-populated country in Africa, highlighted a considerable level of past-year non-medical use of prescription opioids (mainly tramadol), with an annual prevalence of 6.0 per cent among men and 3.3 per cent among women.[3]

Among users of opioids, 29.2 million were past-year users of opiates (heroin and opium) in 2017, corresponding to 0.6 per cent of the global population aged 15–64; the number of past-year users of opiates globally is 50 per cent higher than the previously estimated 19.4 million in 2016 (the result of an improvement in the understanding of the extent of the use of opiates based on recent survey findings from India and Nigeria). The subregions with the highest prevalence of use of opiates are the Near and Middle East and South-West Asia (1.6 per cent), South Asia (1.3 per cent) and Central Asia and Transcaucasia (0.9 per cent).

Use of amphetamines, especially methamphetamine, is increasing in parts of Asia and North America

In 2017, there were an estimated 28.9 million past-year users of amphetamines, corresponding to 0.6 per cent of the global population aged 15–64, 15 per cent lower than the previously estimated 34.2 million in 2016 (the result of an improvement in the understanding of the use of amphetamines based on recent survey findings from Nigeria and India). The highest past-year prevalence among the population aged 15–64 was in North America (2.1 per cent) and Oceania (1.3 per cent).

The form of amphetamines used varies considerably from region to region. In North America, it is mainly the non-medical use of prescription stimulants and methamphetamine; crystalline methamphetamine in East and South-East Asia and Oceania (Australia); and amphetamine in Western and Central Europe and the Near and Middle East. Since 2010, there has been a relatively stable situation in use of amphetamines in most countries in Western and

2 Institute for Health Metrics and Evaluation, "Global Burden of Disease Study 2017", Global Health Data Exchange.

3 *Drug Use in Nigeria 2018*.

Central Europe, although data based on the analysis of wastewater have shown an increase in recent years. In North America, there are indications of an increase in methamphetamine use, while the use of methamphetamine, in particular crystalline methamphetamine, has continued to be reported as increasing in East and South-East Asia

Past-year use of "ecstasy" is estimated at 21.3 million people globally, corresponding to 0.4 per cent of the global population aged 15–64. Past-year use of "ecstasy" is relatively high in Oceania (2.2 per cent for Australia and New Zealand), West and Central Europe (0.9 per cent) and North America (0.9 per cent). The use of "ecstasy" is mainly associated with recreational nightlife settings, with higher levels of use among younger people. Between 2007 and 2012, most countries in Western and Central Europe reported stable or declining trends in the use of "ecstasy", but there have been indications of an overall resurgence in "ecstasy" use in recent years, owing to increasing availability of high-purity "ecstasy" in Western and Central Europe as well as in other subregions. The forms of "ecstasy" used have also diversified, as high-purity powder and crystalline forms of the drug have become available and are commonly used.

Indications of increasing cocaine use in North America and Western and Central Europe

Globally, an estimated 18.1 million people were past-year users of cocaine in 2017, corresponding to 0.4 per cent of the global population aged 15–64. Past-year use of cocaine is high in Oceania (2.2 per cent for Australia and New Zealand), North America (2.1 per cent), Western and Central Europe (1.3 per cent) and South America (1.0 per cent).

In 2010, stable trends were reported in the use of cocaine in Central America, South America and Europe, while decreasing use of cocaine was reported in North America. More recently, in Western and Central Europe, wastewater analysis and survey results in some countries suggest an increase in cocaine consumption in the subregion. In North America, following a decline in cocaine use between 2006 and 2012, there are signs of an increase; there have also been reported increases in cocaine use in some countries in South America. In addition, the use of cocaine base paste, previously confined to cocaine-manufacturing countries, has spread to countries further south in the subregion. In parts of Asia and West Africa, increasing amounts of cocaine have reportedly been seized, which indicates that cocaine use could potentially increase, especially among the affluent, urban segments of the population, in subregions where such use had previously been low.

Drug use among adolescents and young adults

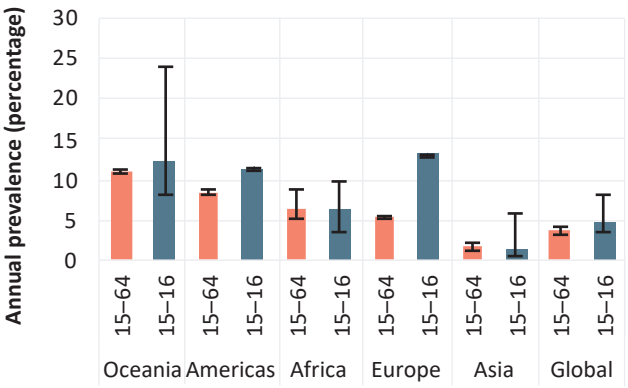
Adolescence and early adulthood are an important period of transition. It is a time of physical and psychological development, with changes occurring in the brain, and of cognitive and emotional development. For some, it is also a time of vulnerability to the use of drugs. Adolescence (12–17 years of age) is the critical risk period for the initiation of substance use. Within the population aged 15–64, peak levels of drug use are seen among those aged 18–25.[4] This is the situation observed in countries in most regions and for most drug types.

Research over the last 20 years has provided a more complete understanding about the individual and environmental factors that increase vulnerability to the initiation of the use of drugs. The progression to disorders is also better understood. Lack of knowledge about substances and the consequences of their use is among the main factors that increase an individual's vulnerability to drug use. Some of the other main vulnerability factors include: genetic predisposition, personality traits (e.g., impulsivity, sensation-seeking), the presence of mental and behavioural disorders, family neglect and abuse, poor attachment to school and the community, social norms and environments conducive to substance use (including the influence of media), and growing up in marginalized and deprived communities. Conversely, psychological and emotional well-being, personal and social competence, a strong attachment to caring and effective parents and attachment to schools and communities that are well resourced and well organized are all factors that contribute to individuals being less vulnerable to substance use.[5]

4 *World Drug Report 2018: Drugs and Age – Drugs and Associated Issues among Young People and Older People* (United Nations publication, Sales No. E.18.XI.9 (Booklet 4)), p. 11.

5 UNODC and WHO, *International Standards on Drug Use*

FIG. 3 Estimates of cannabis use among young people and among the general population, 2017



Source: UNODC, responses to the annual report questionnaire; and other government reports.

Note: The estimates of the annual prevalence of use among people aged 15–16 is based on school surveys in most countries and may not be representative of all those aged 15–16.

Cannabis is the most widely used drug among young people. Globally, it is estimated that there were 12.6 million past-year users of any drug among students aged 15–16 in 2017, with an estimated 11.3 million past-year users of cannabis. This corresponds to an annual prevalence of cannabis use of 4.7 per cent among this age group, a rate that is higher than the rate of prevalence of cannabis use among the general population aged 15–64 (3.8 per cent). Past-year use of cannabis among young people aged 15–16 is high in Europe (13.2 per cent), Oceania (12.4 per cent) and the Americas (11.4 per cent). The risk of developing dependence on cannabis among those who have ever used the drug (even once) has been estimated at 9 per cent by studies in the United States.[6] That rate rose to one in six (17 per cent) among lifetime users who started using cannabis in adolescence, according to studies from the United States, New Zealand and Australia.[7]

In Europe, where there is a high prevalence of cannabis use among young people, beliefs and attitudes towards its use may help explain that high prevalence. A survey among 13,128 people aged 15–24 from the 28 States members of the European Union was conducted in 2014 to assess perceptions of availability and attitudes towards use of drugs.[8] Cannabis was considered the least harmful drug and the easiest drug to obtain. While 63 per cent of those surveyed considered that the regular use of cannabis might pose a high risk to health, 25 per cent thought there was a medium risk and 11 per cent thought that there was a low risk or no risk to health (1 per cent did not know). More than half (58 per cent) of the respondents reported that it would be easy to obtain cannabis within 24 hours, and 29 per cent said it would be "very easy". Substances with a lower prevalence of use were considered to be a greater risk to health and far less accessible. Almost all respondents considered that the regular use of cocaine or "ecstasy" might pose a high risk to health (96 and 93 per cent, respectively). Fewer respondents said it would be easy to obtain cocaine (25 per cent), "ecstasy" (23 per cent) or heroin (13 per cent). In fact, only one in five said it would be impossible to obtain any of those substances within 24 hours.

A 2015 survey of 96,046 students aged 15–16 in 35 countries in Europe found that the lifetime prevalence of use of tranquillizers and sedatives without a prescription (6 per cent) and of NPS (4 per cent) were higher than the lifetime use of controlled substances other than cannabis. After cannabis (lifetime prevalence of 16 per cent), the most commonly used drugs were "ecstasy", amphetamine, cocaine and LSD or other hallucinogens (each with a lifetime prevalence of 2 per cent). Less commonly used drugs were methamphetamine, "crack" cocaine, heroin and GHB (each with a lifetime prevalence of 1 per cent).[9]

In the United States, two factors that have proved to be central in explaining differences and changes over time in the use of many drugs by young people

Prevention, 2nd ed. (forthcoming).

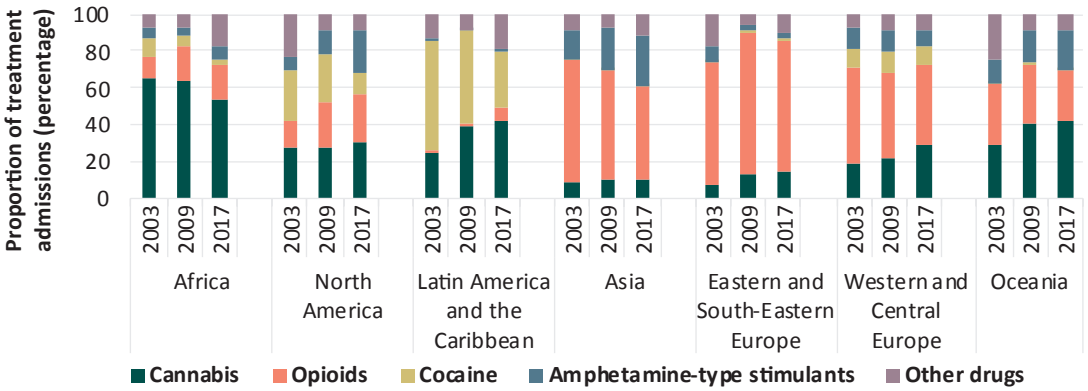
6 Catalina Lopez-Quintero and others, "Probability and predictors of transition from first use to dependence on nicotine, alcohol, cannabis, and cocaine: Results of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC)", *Drug and Alcohol Dependence,* vol. 115, Nos. 1 and 2 (May 2011), pp. 120-130.

7 James C. Anthony, "The epidemiology of cannabis dependence", in *Cannabis Dependence: Its Nature, Consequences and Treatment* (Cambridge, Cambridge University Press, 2006), pp. 58–105.

8 European Commission, *Young people and drugs*, Flash Eurobarometer series No. 401 (August 2014).

9 EMCDDA and European School Survey Project on Alcohol and Other Drugs, *ESPAD Report 2015: Results from the European School Survey Project on Alcohol and Other Drugs* (Luxembourg, Publications Office of the European Union, 2016).

FIG. 4 Trends in the primary drug of concern in drug treatment admissions, by region, 2003, 2009 and 2017



Source: UNODC, responses to the annual report questionnaire.

are the perceived risk of harm and personal disapproval. Trends in the perceived availability of certain drugs have also proved to be important in explaining changes in use levels.[10]

People in drug treatment

For people with drug use disorders, the availability of and access to treatment services remains limited at the global level, as only one in seven people with drug use disorders receive treatment each year. Information on those in treatment can provide useful insight into trends and geographical variations with respect to drug use disorders. However, that information reflects not only the level of demand for treatment (the number of people seeking help, or referred by the criminal justice system or by their families, for example) but also the extent of the availability of treatment services.

All regions except Africa have seen an increasing proportion of the treatment provided going to treatment for use of cannabis as the primary drug of concern. In Africa, although this proportion has been decreasing, treatment for cannabis use as the primary drug of concern remains prominent. On the basis of data from treatment sites across the six regions of South Africa, covering the period from July to December 2017 (the latest data available), between 29 and 56 per cent of those in treatment had cannabis as the primary drug of concern (admissions primarily for the use of alcohol have been excluded). For those under the age of 20, the proportion with cannabis as the primary drug of concern was much higher. Across all regions, between 43 and 83 per cent of people under the age of 20 reported cannabis as the primary drug of concern.[11]

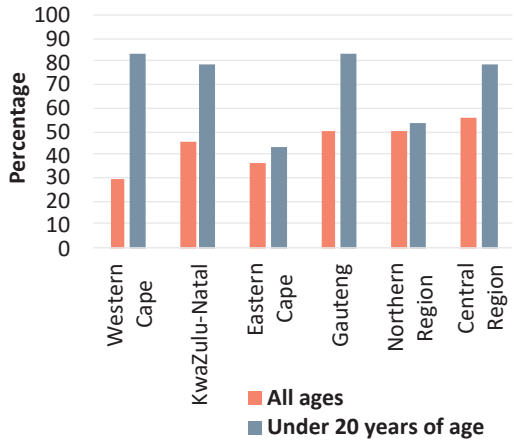
A literature review of studies on substance use in countries in West Africa consistently identified cannabis as the primary drug of concern in the majority of treatment admissions. Information on treatment admissions was available for 8 of the 16 countries included in the review, and in all those countries, cannabis was identified as the primary (controlled) substance of concern for the majority of those in drug treatment. In five of those eight countries, the proportion of treatment admissions for the use of cannabis was higher than of admissions for the use of alcohol. The proportions of drug treatment admissions primarily for the use of other substances were very low, typically less than 5 per cent.[12]

10 Richard A. Miech and others, *Monitoring the Future: National Survey Results on Drug Use, 1975–2017*, vol. 1, *Secondary School Students* (Ann Arbor, Michigan, University of Michigan Institute for Social Research, 2018).

11 Siphokazi Dada and others, *Monitoring Alcohol, Tobacco and Other Drug Use Trends in South Africa: Phase 43* (Cape Town, South African Community Epidemiology Network on Drug Use, October 2018).

12 UNODC, *Situation of Drug Use in ECOWAS Member States and Mauritania: A Review of the Literature (2006-2010)* (Vienna, 2017).

FIG. 5 Proportion of people in drug treatment with cannabis as the primary drug of concern, South Africa, July to December 2017



Source: Siphokazi Dada and others, *Monitoring Alcohol, Tobacco and Other Drug Use Trends in South Africa: Phase 43* (Cape Town, South African Community Epidemiology Network on Drug Use, October 2018).

Note: Treatment for the use of alcohol, which was included in the publication, has been excluded from this analysis.

To date, no medication has been found to be effective in the treatment of cannabis use disorders. Psychological and social interventions that are aimed at changing behaviour and providing support, such as cognitive behavioural therapy (in which irrational, negative thinking styles are challenged and the development of alternative coping skills is promoted) or motivational interviewing (in which a user's personal motivation to change their own behaviour is facilitated and engaged), are therefore the only type of treatment available.[13]

Opioids (predominantly heroin) remain the main drug for which people receive treatment in Europe (particularly in Eastern and South-Eastern Europe) and Asia. In Europe, the use of opioids (mostly heroin) was the main reason for entering specialized drug treatment in 2016, accounting for 37 per cent of treatment admissions. The most commonly used opioid in Europe is heroin, and the region has seen different waves of its use: the first affected many countries in Western Europe from the mid-1970s onward, and the second affected, in particular, countries in Central and Eastern Europe in the mid- to late 1990s. In recent years, an ageing cohort of opioid users, who are likely to have contact with treatment services, has been identified.[14] Pharmacological maintenance therapy, such as methadone and buprenorphine, which reduces the craving for and use of opioids is recommended by WHO and has become the mainstream treatment for opioid dependence in many countries.[15, 19]

In the Islamic Republic of Iran, at the clinic of the Iranian National Centre for Addiction Studies in Tehran, opioids and stimulants are the predominant drugs of concern among new treatment admissions. This reflects the high past-year prevalence of opioid use disorders (opium in particular), the most common type of drug use disorder in the country, estimated at 1.8 per cent among people aged 15–64 in 2011.[17] Although the past-year prevalence of ATS use disorders, at 0.35 per cent, was lower than the prevalence of cannabis use disorders, at 0.52 per cent, cannabis has only recently begun to appear as a drug of concern among new treatment admissions.[18]

There are currently no pharmacological interventions available to treat the use of stimulants, and behavioural interventions are the only available and effective treatment. Treatment for the use of ATS is more common in Asia (predominantly for the use of methamphetamine) and Oceania (based on data from Australia and New Zealand for methamphetamine). For a number of years now, East and

13 J. Schettino and others, *Treatment of Cannabis-related Disorders in Europe*, EMCDDA Insights Series, No. 17 (Luxembourg, Publications Office of the European Union, 2015).

14 EMCDDA, *European Drug Report 2018: Trends and Developments* (Luxembourg, Publications Office of the European Union, 2018).

15 UNODC and WHO, *International Standards for the Treatment of Drug Use Disorders: Draft for Field Testing* (Vienna, 2017).

16 WHO, *Guidelines for the Psychosocially Assisted Pharmacological Treatment of Opioid Dependence* (Geneva, 2009).

17 Determined according to the *Diagnostic and Statistical Manual of Mental Disorders, 4th ed.* (Washington, D. C., American Psychiatric Association), based on the 12 months prior to the interview.

18 Masoumeh Amin-Esmaeili and others, "Epidemiology of illicit drug use disorders in Iran: prevalence, correlates, comorbidity and service utilization results from the Iranian Mental Health Survey", *Addiction*, vol. 111, No. 10 (October 2016), pp. 1836–1847.

Approaches to drug treatment

In caring for those with drug use disorders, it is important to ensure that the most effective, efficient and ethical treatment services are in place. Even though the evidence shows that drug use disorders are best managed within a public health system, the inclusion of addiction treatment in the health-care system is difficult in some countries. In order to be effective, treatment services must meet the requirements of the individual according to the specific level of severity of their disorder. Effective treatment incorporates many components, including outreach services, screening and brief interventions, inpatient and outpatient treatment, evidence-based pharmacological treatment and psychosocial interventions, long-term residential treatment, rehabilitation, and recovery-support services.[a]

As part of the response to drug use, some countries in Asia have implemented compulsory drug detention centres in which people who use or are dependent on drugs are confined without their consent and in some cases without due process and clinical evaluation under the pretext of treatment or rehabilitation. This is in direct conflict with human rights obligations and contrary to medical ethics.[b] A recent analysis of compulsory treatment of drug use in seven countries in South-East Asia, based on the latest information available, found that, in 2014, 450,000 people were detained in 948 facilities in those seven countries. While the estimated total number of people held decreased by 4 per cent between 2012 and 2014, and in two countries there was a decline in the number of compulsory detention centres, in four countries the number of people detained increased.[c]

Evidence shows that the most effective response is the treatment of drug use disorders through evidence-based, voluntary treatment modalities.[d, e, f] In 2012, a joint statement on compulsory drug detention and rehabilitation centres was issued by 12 United Nations entities calling for Member States to close compulsory drug detention and rehabilitation centres and implement voluntary, evidence-informed and human rights-based health and social services in the community.[g]

a UNODC and WHO, *International Standards for the Treatment of Drug Use Disorders: Draft for Field Testing* (Vienna, 2017).

b UNODC and WHO, "Principles of drug dependence treatment", discussion paper, March, 2008.

c Karsten Lunze and others, "Compulsory treatment of drug use in Southeast Asian countries", *International Journal of Drug Policy*, vol. 59 (September 2018), pp. 10–15.

d Ibid.

e D. Werb and others, "The effectiveness of compulsory drug treatment: A systematic review", *International Journal on Drug Policy*, vol. 28 (February 2016), pp. 1–9.

f Thu Vuong and others, "Cost-effectiveness of center-based compulsory rehabilitation compared to community-based voluntary methadone maintenance treatment in Hai Phong City, Vietnam", *Drug and Alcohol Dependence*, vol. 168 (November 2016), pp. 147–155.

g International Labour Organization and others, "Joint Statement: compulsory drug detention and rehabilitation centres" (March, 2012).

South-East Asia and North America have been the main markets for methamphetamine.[19] People receiving treatment for the use of methamphetamine account for more than three quarters of those in treatment in Brunei Darussalam, Cambodia, the Lao People's Democratic Republic, the Philippines, Singapore and Thailand. The provision of treatment in which cocaine is the primary drug of concern is seen mainly in the Americas, in particular in Latin America and the Caribbean.

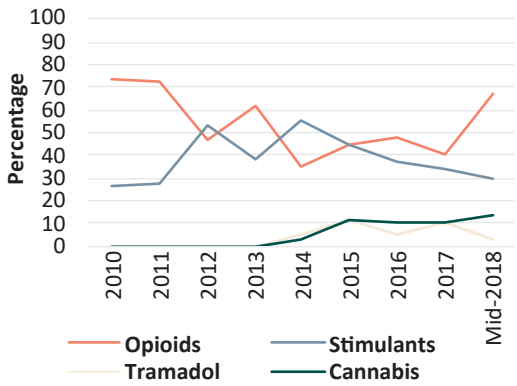
Treatment for drug use is not always tailored to the specific needs of women

Substance use by women tends to progress to drug use disorders in a shorter time period than by men (the "telescoping" effect discussed in the *World Drug Report 2018*).[20] Women may be afraid to get help or seek treatment for their drug use. This may be due, for example, to the fear of possible legal issues and

19 UNODC, "Methamphetamine continues to dominate synthetic drug markets", Global SMART Update, vol. 20 (September 2018).

20 Kathleen T. Brady and Carrie L. Randall, "Gender differences in substance use disorders", *Psychiatric Clinics of North America*, vol. 22, No. 2 (1999), pp. 241–252.

FIG. 6 Percentage of new admissions for treatment at the clinic of the Iranian National Centre for Addiction Studies, Tehran, by drug type, 2010–2018



Source: Iranian National Centre for Addiction Studies.

Note: Opioids include opium, opium concentrate and residue, heroin, morphine and methadone. It does not include tramadol. Clients are also admitted for dependency on other drugs, including alcohol, so the percentages do not add up to 100 in some years. In addition, some clients are dependent on more than one type of substance, leading to a total over 100 per cent in other years due to the recording of polydrug use.

social stigma if pregnant, the lack of childcare while in treatment, or because of other family responsibilities related to the role of women as mothers and caregivers.[21] Treatment services are not always made easily accessible to all those who need them, and particular attention is not always paid to special population groups (such as pregnant women) or marginalized, disadvantaged and vulnerable members of society, in particular those who are women, among others.[22, 23] In the past, research has traditionally used male participants and many drug use interventions are male-oriented, so some treatment interventions may not be as effective for women as for men.[24, 25, 26, 27] As with men, effective treatment for women should be tailored to their individual needs.[28, 29]

Health consequences of drug use

The health consequences of drug use can include a range of negative outcomes such as drug use disorders, mental health disorders, HIV infection, liver cancer and cirrhosis associated with hepatitis, overdose and premature death. The greatest harms to health are those associated with the use of opioids as well as with injecting drug use because of the risk of acquiring HIV or hepatitis C through unsafe injecting practices. Consequently, this section focuses mainly on these aspects of drug use.

However, in recent decades recognition of co-occurring mental health disorders among people with substance use disorders has also been growing. Although substance use disorders commonly occur together with other mental illnesses, it is often unclear whether one was a cause of the other or if common underlying risk factors contributed to both disorders. The relevance of the comorbidity of substance use and mental health disorders is related not only to the high prevalence of that comorbidity but also to the difficulty of managing it and its association with poor outcomes such as a higher rate of psychiatric hospitalizations and a higher prevalence of suicide than among those without comorbid mental disorders.[30]

21 *Report of the International Narcotics Control Board for 2016* (E/INCB/2016/1).

22 *Report of the International Narcotics Control Board for 2017* (E/INCB/2017/1).

23 *International Standards for the Treatment of Drug Use Disorders*.

24 EMCDDA, "Women's voices: experiences and perceptions of women facing drug-related problems in Europe" (Luxembourg, Office for Official Publications of the European Communities, 2009).

25 National Institute on Drug Abuse "Substance use in women", Research Reports (Bethesda, Maryland, United States, 2018).

26 Sharon Arpa, "Women who use drugs: issues, needs, responses, challenges and implications for policy and practice" (Lisbon, EMCDDA, 2017).

27 UNODC, *Guidelines on Drug Prevention and Treatment for Girls and Women* (Vienna, 2016).

28 *International Standards for the Treatment of Drug Use Disorders*.

29 WHO, *Guidelines for the Identification and Management of Substance Use and Substance Use Disorders in Pregnancy* (Geneva, 2014).

30 Marta Torrens and others, *Comorbidity of Substance Use and Mental Disorders in Europe*, EMCDDA Insights Series, No. 19 (Luxembourg, Publications Office of the European Union, 2015).

The Global Burden of Disease Study 2017: mortality and morbidity attributable to the use of drugs

The Global Burden of Disease Study[31] provides an indication as to which substances and causes of injury and disease are responsible for the greatest negative health consequences from the use of drugs[32] in terms of deaths and years of "healthy" life lost: disability-adjusted life years (DALYs). DALYs measure the burden of disease from the combination of both the years of life lost as a result of premature death and years of life lived with disability (any form of impairment).

The Global Burden of Disease Study 2017 estimated that, globally, in 2017, there were 585,000 deaths and 42 million years of "healthy" life lost as a result of the use of drugs. Half of the DALYs were attributed to years of life lost owing to premature death and half to years lived with disability. Most of the burden of disease is among males, who contribute to 72 per cent of deaths and 70 per cent of DALYs.

Globally over the past three decades, the number of deaths and DALYs attributed to the use of drugs have approximately doubled, increasing by 134 per cent and 81 per cent, respectively. In 2017, more than half of those deaths (52 per cent) were the result of untreated hepatitis C leading to liver cancer and cirrhosis, 29 per cent were attributed to drug use disorders mostly related to the use of opioids (66 per cent of deaths from drug use disorders) and 11 per cent to HIV/AIDS. The largest increase in deaths in absolute numbers between 1990 and 2017 was associated with untreated hepatitis C. Deaths from drug use disorders have remained more stable, while deaths associated with HIV/AIDS have been on a gradual decline since their peak around 2005. Looking beyond deaths, a different picture of the harmful consequences of drug use emerges when looking at DALYs as whole. Between 1990 and 2017, the years of "healthy" life lost through premature death and disability are dominated by drug use disorders, especially from the use of opioids, which contributed to 79 per cent of the DALYs associated with drug use disorders and 52 per cent of total DALYs attributed to the use of drugs in 2017.

The greatest burden of disease is seen in East and South-East Asia, North America and South Asia. In those subregions, based on UNODC data, a large number of opioid users are observed (6 per cent, 24 per cent and 35 per cent of global opioid users, respectively), as are a large number of PWID (28 per cent, 16 per cent and 8 per cent of global PWID, respectively). In Africa, mortality and morbidity are more associated with HIV/AIDS and less with cirrhosis and cancer from untreated hepatitis C. Although data for Africa are limited, except for some countries in North Africa, injecting drug use has a low prevalence in the region, and because hepatitis C is a blood-borne infection that is highly prevalent among PWID, it has not had such an impact as in other regions.

Globally, the use of opioids is responsible for most of the years of "healthy" life lost in relation to drug use.[33] The relatively early loss of life resulting from opioid use disorders compared with the mortality linked to HIV or hepatitis C plays a role. However, most (78 per cent) of the years of "healthy" life lost attributed to the use of opioids result from years lived with disability, rather than the years of life lost resulting from premature death.[34]

More than 11 million people worldwide inject drugs

PWID experience multiple negative health consequences. They are at increased risk for fatal overdose[35] and disproportionately affected by blood-borne infectious diseases such as HIV and hepatitis C acquired through the sharing of contaminated needles and syringes. There is the potential for these infectious diseases to be spread beyond those who

31 "Global Burden of Disease Study 2017".

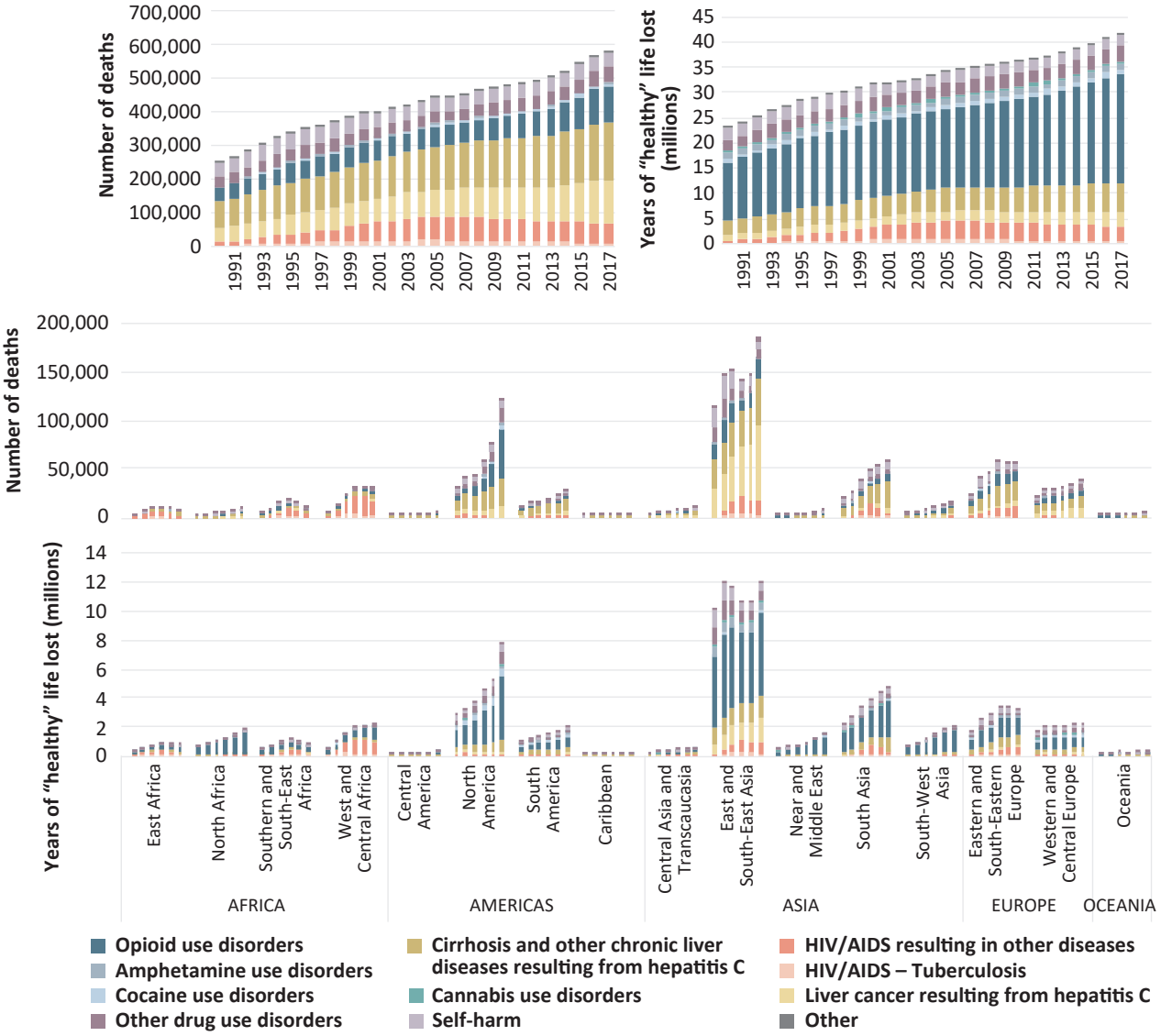
32 In the Study, the use of drugs is defined as dependency upon opioids, cannabis, cocaine or amphetamines, or a history of injecting drug use.

33 "Global Burden of Disease Study 2017".

34 Global Burden of Disease 2017 Disease and Injury Incidence and Prevalence Collaborators, "Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017", *The Lancet*, vol. 392, No. 10159 (November 2018), pp. 1789–1858.

35 Bradley M. Mathers and others, "Mortality among people who inject drugs: a systematic review and meta-analysis", *Bulletin of the World Health Organization*, vol. 91, No. 2 (2013), pp. 102–123.

FIG. 7 Deaths and years of "healthy" life lost (DALYs) attributable to the use of drugs, 1990–2017



Source: Institute for Health Metrics and Evaluation "Global Burden of Disease Study 2017", Global Health Data Exchange. Available at http://ghdx.healthdata.org/gbd-results-tool.

Note: Regional grouping are not those used by the Global Burden of Disease Study. Country estimates were aggregated to produce regional estimates based on the World Drug Report regional groupings. In the charts showing subregional data, the bars refer to the years 1990, 1995, 2000, 2005, 2010 and 2017.

inject drugs to the wider community through, for example, sexual transmission.

The joint UNODC/WHO/UNAIDS/World Bank estimate for the number of PWID worldwide in 2017 is 11.3 million (range: 8.9 million to 15.0 million), corresponding to 0.23 per cent (range: 0.18 to 0.30 per cent) of the population aged 15–64. This estimate is founded on the most recent and highest quality information available to UNODC. The estimated number of PWID for the preceding year, 2016, was 10.6 million (range: 8.3 million to 14.7 million), or 0.22 per cent (range: 0.17 to 0.30 per cent) of the population aged 15–64. However, given the large uncertainty range of the estimates,

this does not imply that there has been a change over time in the global number of PWID. While new or updated estimates of the prevalence of injecting drug use were available for 30 countries, the higher estimate for the global number of PWID largely reflects findings from a recent survey conducted in India (see the box on page 10 of the present booklet). Based on estimates of injecting drug use from 110 countries, the available data for 2017 cover 88 per cent of the global population aged 15–64.

The proportions of the populations aged 15–64 who inject drugs are relatively high in Eastern and South-Eastern-Europe and in Central Asia and Transcaucasia, with rates that are almost four times higher (3.6 and 3.4, respectively) than the global average. In terms of the actual numbers of PWID, most reside in East and South-East Asia (28 per cent of the global total), even though the prevalence of injecting drug use is relatively low in that subregion. A large number of PWID also reside in Eastern and South-Eastern Europe (16 per cent of the global total) and North America (16 per cent of the global total). Combined, those three subregions account for almost two thirds (60 per cent) of the global number of PWID.

A small number of countries account for a considerable proportion of the estimated number of PWID worldwide. When combined, three countries – China, the Russian Federation and the United States – account for 27 per cent of the global population aged 15–64 but are home to almost one half (43 per cent) of PWID worldwide.

Approximately one in eight people who inject drugs are living with HIV

PWID are disproportionately affected by HIV. UNAIDS estimates that, in 2017, PWID were 22 times more likely to be living with HIV than the general population and that PWID accounted for 9 per cent of new HIV infections globally, with the proportion increasing to more than one third of new HIV infections in Eastern Europe and Central Asia (39 per cent) and in the Middle East and North Africa (38 per cent).[36]

36 UNAIDS, *Miles to Go: Closing Gaps, Breaking Barriers, Righting Injustices* (Geneva, 2018).

Drugs and driving

The role of drugs in driver impairment and traffic accidents has become a cause for concern in many countries. For example, based on roadside surveys of 50,000 drivers in 13 countries in Europe, in which blood or oral fluid samples were analysed, it was found that drugs (mostly cannabis) were present in 1.9 per cent of the samples.[a] In 2017 in the United States, according to the National Survey on Drug Use and Health, 12.8 million people (5.0 per cent of those aged 16 and older) had driven under the influence of drugs in the previous year.[b] Research has found that the risk of a serious accident (where the driver was seriously injured or killed) can be up to three times higher when the driver is under the influence of cannabis, while driving under the influence of cocaine, opioids or benzodiazepines increases the risk by 2−10 times, the use of amphetamines or multiple drug use increases the risk by 5−30 times, and alcohol in combination with drugs increases the risk by a factor of 20−200.[c] An analysis of drivers fatally injured (who died at the scene of the crash) in the United States between 1998 and 2010 found that, overall, 26 per cent tested positive for drugs, most commonly stimulants (7.2 per cent) and cannabinols (7.1 per cent).[d] Although the risk of injury to and death of the impaired driver have been widely reported, the impact on others (passengers and pedestrians) has received less attention.

a Alain G. Verstraete and Sara-Ann Legrand, *Drug Use, Impaired Driving and Traffic Accidents*, 2nd ed., EMCDDA Insights Series, No. 16 (Luxembourg, Publications Office of the European Union, 2014).

b United States, Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality, *Results from the 2017 National Survey on Drug Use and Health: Detailed Tables* (Rockville, Maryland, 2018).

c EMCDDA, *Driving Under the Influence of Drugs, Alcohol and Medicines in Europe: Findings from the DRUID Project* (Luxembourg, Publications Office of the European Union, 2012).

d Eduardo Romano and Robin A. Pollini, "Patterns of drug use in fatal crashes", *Addiction*, vol. 108, No. 8 (August 2013), pp. 1428–1438.

Monetary value of social costs of drug use

The monetary value of the social costs arising from drug use at the national level can be substantial. A 2014 study in Canada estimated the cost of drug use in terms of health-care costs, lost productivity costs, criminal justice costs and other direct costs (such as research, prevention and drug-testing programmes). Overall costs were highest for the use of opioids (3.5 billion Canadian dollars, which is the equivalent of 98 dollars per Canadian regardless of age) and were mostly associated with lost productivity costs, particularly related to premature death. It was not possible to distinguish between the harms associated with medical and non-medical opioid use, or use of diverted pharmaceutical opioids, or those manufactured illicitly. Costs attributed to the use of cannabis (2.8 billion Canadian dollars) were mostly associated with criminal justice, particularly policing. Although overall costs from the use of cocaine were lower (2.2 billion Canadian dollars), its use was associated with the highest criminal justice costs (1.9 billion Canadian dollars), mostly related to policing. Between 2007 and 2014, per-person costs associated with opioids increased by 0.9 per cent, but the largest increase was associated with cannabis use, which grew by 19 per cent from 67 to 79 Canadian dollars per person. The year of the study (2014) was at the beginning of the rise in opioid overdoses in Canada, and it can be expected that the costs of opioid use has increased, possibly substantially.[a]

[a] Canadian Substance Use Costs and Harms Scientific Working Group, *Canadian Substance Use Costs and Harms* (2007–2014) (Ottawa, Canadian Centre on Substance Use and Addiction, 2018).

The joint UNODC/WHO/UNAIDS/World Bank estimate for the prevalence of HIV among PWID worldwide in 2017 is 12.7 per cent, amounting to 1.4 million PWID living with HIV. Based on estimates of the prevalence of HIV among PWID from 121 countries, the available data cover 95 per cent of the number of estimated PWID globally.

The prevalence of HIV among PWID is highest by far in South-West Asia and in Eastern and South-Eastern Europe, with rates that are 2.3 and 1.8 times the global average, respectively. In all other regions and subregions, the prevalence of HIV among PWID is below the global average. A large number of PWID living with HIV reside in those two subregions (15 per cent and 29 per cent of the global total, respectively), as well as in East and South-East Asia (22 per cent of the global total), although the prevalence of injecting drug use and HIV among PWID in East and South-East Asia are both below the global averages. Combined, these three subregions account for 66 per cent of global PWID living with HIV.

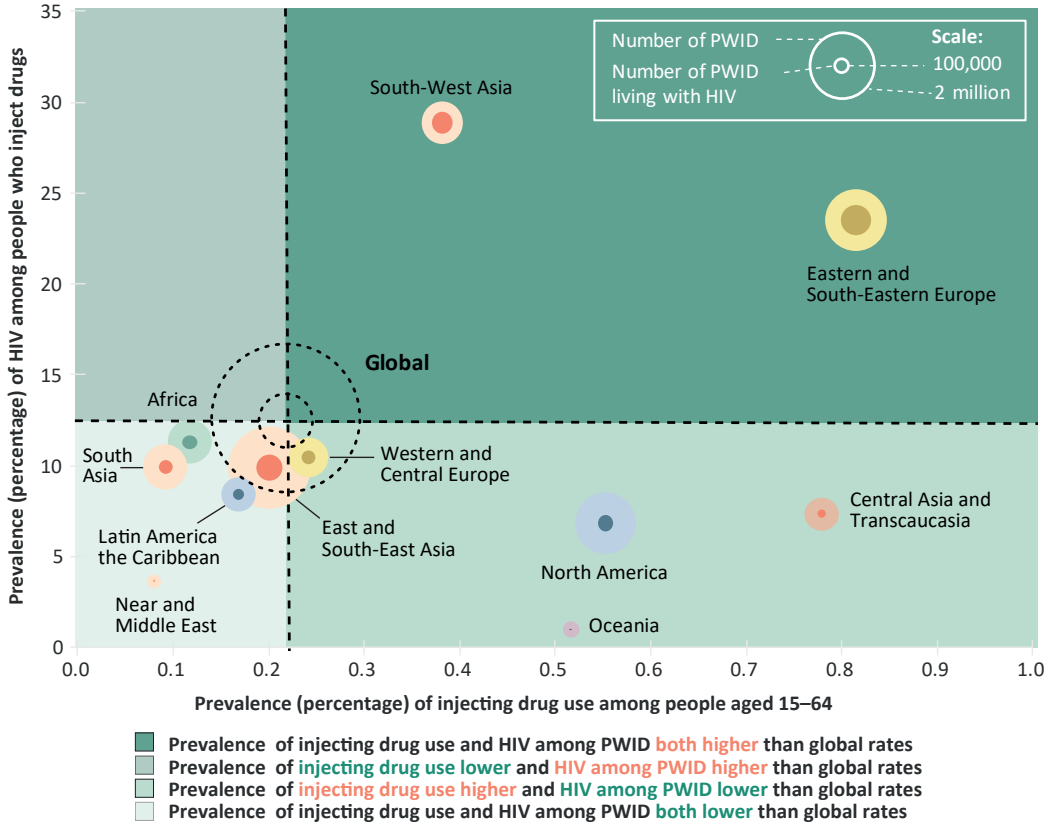
A small number of countries account for a large proportion of the number of PWID globally living with HIV. When combined, three countries (China, Pakistan and the Russian Federation) account for 33 per cent of PWID worldwide but are home to almost one half (47 per cent) of PWID living with HIV.

According to UNAIDS, among all those living with HIV (not only those who use drugs), reductions in deaths resulting from AIDS-related illness since their peak in 2004 have largely been driven by the scale-up of treatment. In 2017, three out of four people living with HIV globally knew their HIV status, and with the massive scale-up in access to treatment (an estimated 21.7 million people were accessing treatment at the end of 2017, five and a half times more than a decade ago), among those who know their status, 79 per cent were accessing antiretroviral therapy and 81 per cent of people accessing treatment had suppressed viral loads (preventing both AIDS-related illness and onward transmission of HIV).[37]

The Global Burden of Disease Study 2017 suggests that HIV/AIDS mortality associated with drug use has been declining. However, the extent to which the scale-up of HIV testing and treatment has reached those who use and inject drugs is less clear as data are sparse, in particular on access to treatment. A systematic review identified 34 countries with evidence of HIV-testing programmes for

37 Ibid.

FIG. 8 Regional patterns in injecting drug use and HIV among people who inject drugs, 2017



Source: UNODC, responses to the annual report questionnaire; progress reports of UNAIDS on the global AIDS response (various years); the former Reference Group to the United Nations on HIV and Injecting Drug Use; and published peer-reviewed articles and government reports.

Note: Regions and subregions are coloured: green (Africa), blue (Americas), orange (Asia), yellow (Europe) and pink (Oceania). Available data on PWID size estimations are more limited in their coverage of the populations aged 15–64 in the Near and Middle East (39 per cent), Africa (58 per cent) and Oceania (73 per cent). Information was available for only 1 of the 26 countries and territories in the Caribbean (Puerto Rico) and for 2 of the 25 in Oceania (Australia and New Zealand). Data on the prevalence of HIV among PWID are more limited in their coverage of the PWID populations in the Near and Middle East (56 per cent), Oceania (73 per cent), Latin America and the Caribbean (75 per cent) and Africa (75 per cent). Information was only available for 4 of the 26 countries and territories in the Caribbean (Aruba, Bahamas, Puerto Rico and Saint Lucia) and from 2 of the 25 in Oceania (Australia and New Zealand).

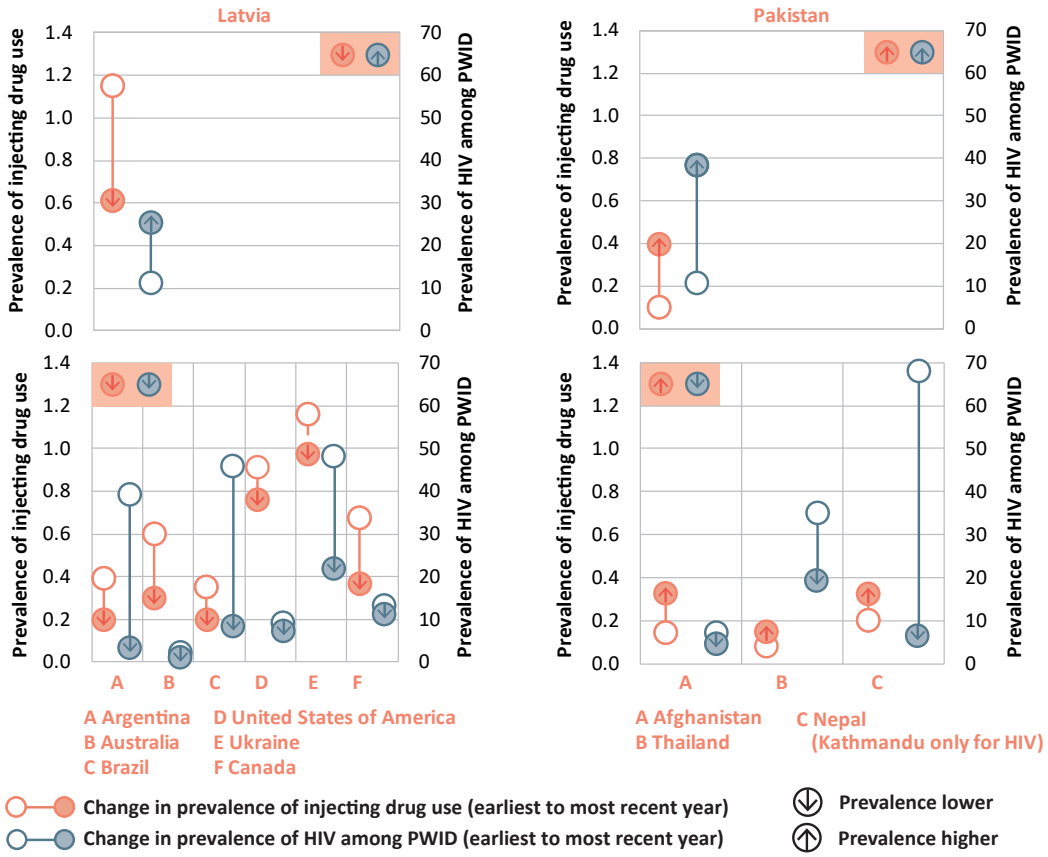
PWID in 2017 and 17 countries that confirmed no targeted HIV-testing existed (data were not identified for 125 countries). Further, data on access to antiretroviral therapy among PWID were not available for most (162) countries. Where data were available, coverage was typically low in comparison with the suggested targets set by WHO, UNODC and UNAIDS.[38] There were just seven countries with survey data on access to antiretroviral therapy, ranging from 5 per cent HIV-positive PWID receiving antiretroviral therapy in Malaysia to 67 per cent in the United States.[39]

Only two subregions, Eastern and South-Eastern Europe, and South-West Asia, have a prevalence of both injecting drug use and HIV among PWID that are greater than the global average. Despite

38 *WHO, UNODC, UNAIDS Technical Guide for Countries to Set Targets for Universal Access to HIV Prevention, Treatment and Care for Injecting Drug Users: 2012 Revision* (Geneva, WHO, 2012).

39 Sarah Larney and others, "Global, regional, and country-level coverage of interventions to prevent and manage HIV and hepatitis C among people who inject drugs: a systematic review", *The Lancet Global Health*, vol. 5, No. 12 (December 2017), pp. e1208–e1220.

FIG. 9 Long-term trends in injecting drug use and HIV among people who inject drugs, selected countries, various years covering the overall period 1992–2017



Source: UNODC, responses to the annual report questionnaire; progress reports of UNAIDS on the global AIDS response (various years); the former Reference Group to the United Nations on HIV and Injecting Drug Use; and published peer-reviewed articles and government reports. For details see the statistical annex published on the UNODC website. Available at www.unidc.org/wdr2019.

Note: Orange depicts changes in the prevalence (percentage) of injecting drug use (various age groups). Blue depicts changes in the prevalence (percentage) of HIV among PWID. The white circle is the estimate for the earliest year and the coloured circle is the estimate for the latest year.

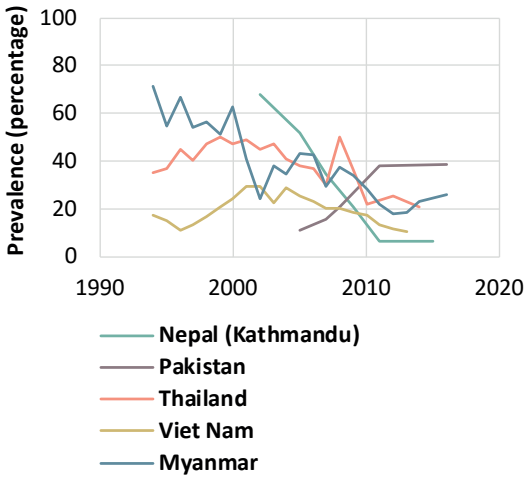
most subregions seeing a decline in mortality associated with HIV/AIDS attributable to the use of drugs, HIV/AIDS-related mortality resulting from the use of drugs continues to increase in those two subregions, in particular, Eastern and South-Eastern Europe.

Long-term trends in injecting drug use and HIV among people who inject drugs

It is challenging to determine the global trends for the prevalence of injecting drug use, or HIV among PWID, during the past few decades. Very few countries have comparable data for multiple years, and changes in annual global estimates often reflect the availability of new and better data rather than actual changes in the situation. In the past few years there have been improvements in survey methodologies and an increasing use of indirect methods.

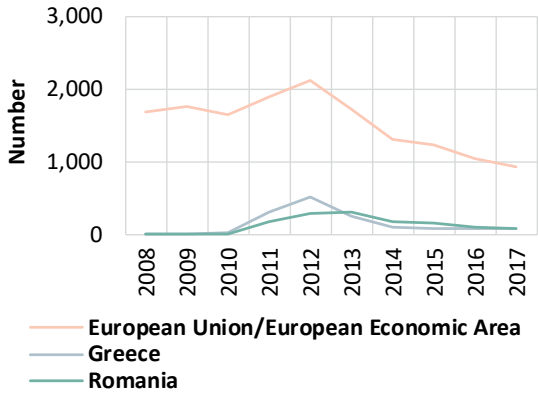
Focusing on a few countries where trends can be assessed by using comparable data over time, it can be noted that there are mixed trends. Some countries have reported a lower prevalence over time of both injecting drug use and HIV among PWID, while others have reported a higher prevalence of injecting drug use and/or HIV among PWID.

FIG. 10 HIV among people who inject drugs, selected countries, Asia, 1994–2017



Sources: Government of Nepal, Ministry of Health, National Centre for AIDS and STD Control, "Factsheet 7: HIV Surveillance in Nepal, 2017"; Pakistan, Ministry of Health, National AIDS Control Program, *HIV Second Generation Surveillance in Pakistan* (various years: National Report Round 1 (2005); Round II 2006–2007; Round III (2008); Round IV (2011–2012); Round V (2016–2017)) (Islamabad); Thailand, National AIDS Prevention and Alleviation Committee, *UNGASS Country Progress Report: Thailand – Reporting Period January 2008–December 2009*; Thailand, National AIDS Committee, *Thailand AIDS Response Progress Report: 2015*; Viet Nam, *Viet Nam AIDS Response Progress Report 2014: Following up the 2011 Political Declaration on HIV AIDS* (Hanoi, 2014); Myanmar, HIV Sentinel Sero-surveillance (HSS) Survey (1994–2016) and Integrated Biological and Behavioral Surveillance (IBBS) survey data (2014, 2017), National AIDS program, Ministry of Health and Sports.

FIG. 11 New cases of HIV diagnoses among people who inject drugs in Europe, 2008–2017



Source: European Centre for Disease Prevention and Control and WHO Regional Office for Europe, HIV/AIDS surveillance in Europe: 2018–2017 data (Copenhagen, 2018).

Note: Europe, for the purposes of this figure, includes countries of the European Union and European Economic Area, but not from Germany, which did not report data for 2017.

The limited country-level data show that, in some regions and countries, there has been a change in injecting behaviours and the spread of HIV in line with the scaling-up of science-based prevention and treatment interventions. While it is not always possible to link changes to service delivery, or to understand all the factors influencing the changes in prevalence, in many countries, the reported prevalence of injecting drug use and HIV among PWID is lower now than it was a decade or two ago. However, changes over time in a country are not always in the same direction, with peaks and troughs observed, and in some countries the prevalence of HIV among PWID remains at high levels.

Over the past decade, Europe has experienced a decline in the number of new cases of HIV among PWID. This decline is consistent with the scaling-up in the coverage of prevention measures and an overall long-term decline in injecting drug use.[40, 41] Although an increase in new cases of HIV among PWID was observed in 2011 and 2012 due to localized outbreaks in Greece and Romania, an overall downward trend in many countries in Europe has been observed.[42]

While favourable outcomes have been achieved in many countries, HIV among PWID remains a challenge in many parts of the world. Even in well-resourced, high-income countries, localized outbreaks of HIV among PWID in recent years have been documented in Europe and North America.[43, 44]

40 Lucas Wiessing and others, "Trends in HIV and hepatitis C virus infections among injecting drug users in Europe, 2005 to 2010", *Eurosurveillance*, vol. 16, No. 48 (2011).

41 EMCDDA, *European Drug Report 2017: Trends and Developments* (Luxembourg, Publications Office of the European Union, 2017).

42 European Centre for Disease Prevention and Control and WHO Regional Office for Europe, *HIV/AIDS Surveillance in Europe: 2018– 2017 data* (Copenhagen, 2018).

43 Don C. Des Jarlais and others, "Complacency is the new problem: comparative analysis of recent outbreaks of HIV among persons who inject drugs in Europe and North America", presentation at the twenty-second International AIDS Conference, Amsterdam, July 2018 (abstract THPEC189).

44 Don C. Des Jarlais and others, "HIV infection among persons who inject drugs: ending old epidemics and addressing new outbreaks", *AIDS*, vol. 30, No. 6 (2016), pp. 815–826.

Drug use and the sexual transmission of HIV

In the discussion on drug use and HIV, the traditional focus in the *World Drug Report* has been on the transmission of HIV associated with injecting drug use. There has been less emphasis on the role of drugs, whether injected or not, in the sexual transmission of HIV.

The use of drugs can play a role in reducing inhibitions towards and promoting risky sexual practices, such as a higher frequency of sexual activity, a greater number of casual sexual partners, unprotected sex or the inconsistent use of condoms, and the selling of sex for money or drugs. All of those practices can lead to an elevated risk for the sexual transmission of HIV among drug users and their sexual partners.

In particular, there seems to be an association between the use of stimulants and an increase in risky sexual behaviour for HIV. Stimulant use affects both the physiological and psychological aspects of sexual behaviour. For example, methamphetamine and amphetamine are often used to increase sexual desire and pleasure, prolong sexual performance, facilitate sexual experimentation and decrease sexual inhibition. The use of stimulants before or during sex is more common among certain groups of drug users, for example, men who have sex with men.[a, b]

Men who have sex with men constitute a subpopulation that is particularly affected by the global epidemic of HIV, accounting for 18 per cent of new HIV infections globally and with a risk of acquiring HIV some 28 times higher than heterosexual men.[c, d] A systematic review undertaken in 2005 examining the use of "club drugs" as a risk factor for acquiring HIV among men who have sex with men found that the use of ATS, particularly methamphetamine, was associated with engagement in risky sexual behaviours and an increased incidence of HIV.[e] A more recent review (based on eight studies from the United States) also found that methamphetamine use was consistently associated with risky sexual behaviours among men who have sex with men.[f] A study conducted in 47 cities in the United States followed 4,684 HIV-negative men who have sex with men over a period of 36 months. The study excluded men who have sex with men who reported current injecting drug use. Over 60 per cent reported recreational drug use on entering the study. A high number of new HIV-positive cases were reported over the follow-up period, with 338 men who have sex with men contracting the virus. Use of amphetamines and amyl nitrates ("poppers") was linked to significantly higher risks of acquiring HIV.[g]

"Chemsex" is a term used to describe the use of specific drugs (typically stimulants such as mephedrone, methamphetamine, GHB/GBL) before or during planned sex to facilitate, and prolong, sustain or intensify the experience and reduce inhibitions. Such behaviour can have an impact on risk behaviours for the spread of HIV among the relatively small proportion of men who have sex with men who engage in this practice. A systematic review highlighted that men who have sex with men who are HIV-positive are more likely to engage in "chemsex" and are more likely to engage in high-risk sexual practices, including unprotected sex, than men who have sex with men who do not combine drug use with sex.[h]

The selling of sex in exchange for money or drugs has been reported and has been associated with several HIV-risk behaviours.[i] For example, a study examining sex-for-"crack" cocaine exchanges and associated effects on sexual risk outcomes among female sex workers in Vancouver, Canada, found that half reported exchanging sex for "crack" cocaine and this was significantly associated with servicing a greater number of clients (more than 10 per week).[j] A study among sex workers in Mexico found that those who reported lifetime methamphetamine use were less likely to use condoms.[k] Another study among sex workers in Vancouver found that more frequent drug use was strongly associated with being offered or accepting more money for sex without a condom, suggesting that clients looking for unprotected sex may seek out sex workers who are particularly vulnerable to coercion, including women who are experiencing acute withdrawal and the immediate need to use drugs.[l]

a Claire Edmundson and others, "Sexualised drug use in the United Kingdom (UK): A review of the literature", I*nternational Journal of Drug Policy*, vol. 55 (May 2018), pp. 131–148.

b Monica Desai and others, "Sexualised drug use: LGTB communities and beyond", *International Journal of Drug Policy*, vol. 55 (May 2018), pp. 128–130.

c UNAIDS, *Miles to Go: Closing Gaps, Breaking Barriers, Righting Injustices* (Geneva, 2018).

d UNAIDS, *UNAIDS Data 2018* (Geneva, 2018).

e Lydia N. Drumright, Thomas L. Patterson and Steffanie A. Strathdee, "Club drugs as causal risk factors for HIV acquisition among men who have sex with men: a review", *Substance Use and Misuse*, vol. 41, Nos. 10–12 (2006), pp. 1551–1601.

f H. Waverly Vosburgh and others, "A review of the literature on event-level substance use and sexual risk behavior among men who have sex with men", *AIDS and Behavior*, vol. 16, No. 6 (August 2012), pp 1394–1410.

g Marta-Louise Ackers and others, "High and persistent HIV seroincidence in men who have sex with men across 47 U.S. cities", *PLoS ONE*, vol. 7, No. 4 (April 2012), pp. 1–7.

h Steven Maxwell, Maryam Shahmanes and Mitzy Gafo, "Chemsex behaviours among men who have sex with men: a systematic review of the literature", *International Journal of Drug Policy*, vol. 63 (January 2019), pp. 74–89.

i UNODC, *Systematic Literature Review on Stimulant Use and HIV (A): Part 3/5 – Cocaine and Crack-Cocaine Risk and Transmission* (Vienna, 2017).

j Putu Duff and others, "Sex-for-crack exchanges: associations with risky sexual and drug use niches in an urban Canadian city", *Harm Reduction Journal*, vol. 10, No. 29 (November 2013), pp. 1–8.

k Fátima A Muñoz and others, "Condom access: associations with consistent condom use among female sex workers in two northern border cities of Mexico", *AIDS Education and Prevention*, vol. 22, No. 5 (October 2010), pp 455–465.

l Kathleen N. Deering and others, "Client demands for unsafe sex: the socioeconomic risk environment for HIV among street and off-street sex workers", *Journal of Acquired Immune Deficiency Syndromes*, vol. 63, No. 4 (August 2013), pp. 522–531.

Approximately half of the people who inject drugs worldwide are living with hepatitis C

Hepatitis C is a significant health concern among PWID and is a greater threat to health than HIV.[45, 46] The higher mortality associated with untreated hepatitis C reflects several factors. Because those living with hepatitis C can remain symptom-free for many years, the problem has remained a "hidden" epidemic until relatively recently, with most cases of infection going undiagnosed and therefore untreated.[47] According to WHO, mortality from hepatitis C is increasing because of poor access to treatment.[48] In addition, hepatitis C is more easily transmitted through injection than HIV.[49] The prevalence of hepatitis C among PWID is much higher, and almost four times as many PWID are living with hepatitis C as are living with HIV. The uptake of testing and treatment has been historically low among PWID. Only recently have highly effective treatment options become available in the form of direct-acting antivirals.

The joint UNODC/WHO/UNAIDS/World Bank estimate for the prevalence of hepatitis C among PWID worldwide in 2017 was 49.3 per cent, with an estimated 5.6 million PWID living with hepatitis C. This estimate is based on information on the prevalence of hepatitis C among PWID from 102 countries, covering 94 per cent of the estimated global PWID population. In comparison, the prevalence of hepatitis C infection among the general population (for all ages) worldwide in 2015 was estimated as 1.0 per cent (range: 0.8–1.1 per cent).[50]

For PWID who are living with HIV, the HIV virus affects the transmission and natural history of hepatitis C infection. Hepatitis C is more readily transmitted in the presence of HIV infection. People living with HIV have higher hepatitis C viral loads and experience more rapid hepatitis C disease progression than those without HIV. Hepatitis C co-infection may also complicate treatment for HIV. A systematic review found a sixfold increase in the likelihood of hepatitis C infection in HIV-positive PWID compared with HIV-negative PWID population groups. For PWID living with HIV, co-infection with hepatitis C is highly prevalent, estimated at 82.4 per cent.[51]

45 Louisa Degenhardt and others, "Estimating the burden of disease attributable to injecting drug use as a risk factor for HIV, hepatitis C, and hepatitis B: findings from the Global Burden of Disease Study 2013", *The Lancet Infectious Diseases*, vol. 16, No. 12 (2016), pp. 1385–1398.

46 "Global Burden of Disease Data".

47 Matthew Hickman and Natasha K. Martin, eds., *Hepatitis C Among Drug Users in Europe: Epidemiology, Treatment and Prevention*, EMCDDA Insights Series, No. 23 (Luxembourg, Publications Office of the European Union, 2016).

48 WHO, "Combating hepatitis B and C to reach elimination by 2030", Advocacy Brief (Geneva, May 2016).

49 Elijah Paintsil and others, "Survival of hepatitis C virus in syringes: implication for transmission among injection drug users", *The Journal of Infectious Diseases*, vol. 202, No. 7 (October 2010), pp. 984–990.

50 WHO, *Global Hepatitis Report 2017 (*Geneva, 2017*)*.

51 Lucy Platt and others, "Prevalence and burden of HCV co-infection in people living with HIV: a global systematic

In 2016, the World Health Assembly endorsed the global health sector strategy on viral hepatitis, with a focus on hepatitis C, calling for the elimination of viral hepatitis as a public health threat by 2030, setting a target of reducing new hepatitis C infections by 90 per cent and mortality associated with hepatitis C by 65 per cent.[52] Addressing the burden of disease from hepatitis C among PWID is critical to achieving that goal, as injecting drug use accounted for 23 per cent of new hepatitis C infections globally in 2015. In 2015, 31.5 per cent of all deaths from hepatitis C were estimated to be attributable to lifetime injecting drug use.[53] In addition, according to estimates contained in the Global Burden of Disease Study 2017, hepatitis C accounted for 52 per cent of the deaths and 21 per cent of the DALYs attributed to the use of drugs in 2017, and the number of both deaths and DALYs continues to increase.[54]

While knowing infection status is important for prevention and treatment, globally, in 2016, according to WHO, an estimated 80 per cent of all people living with hepatitis C (not only those who use drugs) had not been diagnosed, a situation that leads them not to seek treatment or take measures to avoid transmitting the virus to others.[55] Treatment uptake has also been low, with an estimated 7.4 per cent of those diagnosed with hepatitis C infection receiving treatment in 2015.[56] At the global level, there is limited information on the levels of diagnosis and treatment uptake among PWID. In Europe, for example, testing and treatment rates among PWID have been historically low.[57] In a study of more than 3,000 PWID in five cities in the United States, 72 per cent of those tested and found to be living with hepatitis C were not aware that they had the virus.[58]

The uptake of testing and treatment for hepatitis C has historically been low among PWID owing to a number of barriers relating to the patient, the health-care provider and the overall health-care system.[59] In the past, the medications (based on interferon and ribavirin) used for the treatment of hepatitis C had limited effectiveness. They were poorly tolerated and were associated with severe adverse effects. The duration of treatment was long (24 to 48 weeks) and resulted in cure rates of between 40 and 65 per cent. The inability of PWID to access treatment services can sometimes be a result of stigmatization and discrimination by service providers.[60]

What has changed is that highly effective treatment for hepatitis C has recently become available in the form of direct-acting antivirals, which have made a critical difference, potentially transforming the management and outlook for PWID living with hepatitis C.[61] Although some services remain reluctant to treat PWID over concerns about their adherence to treatment, the increased risk of side effects and the risk of reinfection through continued injecting drug use,[62] the use of direct-acting antiviral medications are likely to overcome at least some of the barriers that were traditionally faced by PWID in accessing treatment.[63]

Of particular concern are the restricted use and high prices of new direct-acting antiviral drugs. The high prices of direct-acting antivirals pose a major barrier to the scale-up of their use and has resulted in the "rationing" of treatment (for example, limiting treatment to those with mild-to-severe fibrosis). The prices of direct-acting antivirals have been greatly reduced since 2015 as generic medications have been introduced, particularly in low- and middle-income

review and meta-analysis", *The Lancet Infectious Diseases*, vol. 16, No. 7 (2016), pp. 797–808.

52 WHO, *Global Health Sector Strategy on Viral Hepatitis 2016 – 2021: Towards Ending Viral Hepatitis* (Geneva, 2016).

53 *Global Hepatitis Report 2017*.

54 "Global Burden of Disease Data".

55 WHO, *Progress Report on Access to Hepatitis C Treatment: Focus on Overcoming Barriers in Low- and Middle-income Countries* (Geneva, 2018).

56 *Global Hepatitis Report 2017*.

57 *Hepatitis C Among Drug Users in Europe*.

58 Holly Hagan and others, "Self-reported hepatitis C virus antibody status and risk behavior in young injectors", *Public Health Reports*, vol. 121, No. 6 (2006), pp. 710–719.

59 Philip Bruggmann, "Accessing hepatitis C patients who are difficult to reach: it is time to overcome barriers", *Journal of Viral Hepatitis*, vol. 19, No. 12 (December 2012), pp. 829–835.

60 *Global Hepatitis Report 2017*.

61 Philip Bruggmann and Jason Grebely, "Prevention, treatment and care of hepatitis C virus infection among people who inject drugs", *International Journal of Drug Policy*, vol. 26, Suppl. 1 (February 2015), pp. S22–S26.

62 Philip Bruggmann and Alain H. Litwin, "Models of Care for the Management of Hepatitis C Virus Among People Who Inject Drugs: One Size Does Not Fit All", *Clinical Infectious Diseases*, vol. 57, Suppl. 2 (August 2013), pp. S56–S61.

63 *Hepatitis C Among Drug Users in Europe*.

countries. However, very few high-income countries are currently able to procure the generic versions of direct-acting antivirals, and prices remain high. Access to direct-acting antivirals appears to be particularly poor among PWID.[64]

Despite the opportunity afforded by new medications to addressing the high burden of hepatitis C among PWID, progress in preventing and treating this disease has been slow. In Europe, for example, unrestricted access to treatment remains rare owing to the high costs of the new medications. As of October 2017, one in every two European countries had set out its approach towards hepatitis prevention and care in a policy document. However, clinical guidelines in nine countries included criteria that restrict access to hepatitis C treatment for PWID (for example, requiring abstinence from drug use for 3–12 months).[65] By contrast, some countries have taken important steps to scale up treatment. In France, for example, the national viral hepatitis elimination plan includes provisions for reimbursing the entire cost of hepatitis C tests and direct-acting antiviral therapy under the national health insurance scheme, and specific efforts have been made to reach PWID.[66] In line with the global health sector strategy on viral hepatitis, an action plan was developed for Europe in 2017 and endorsed by the 53 States members of the WHO European region. The action plan contains intermediate European targets for 2020, including specific targets for PWID as one of the populations most affected by and at risk of hepatitis C infection.[67]

Hepatitis B infection also places people at risk of death and disability from liver cirrhosis and liver cancer, although the burden of disease is relatively small compared with that of hepatitis C and HIV. The joint UNODC/WHO/UNAIDS/World Bank global estimate for 2017 for the prevalence of hepatitis B[68] among PWID is 8.6 per cent; in other words, an estimated 0.98 million PWID are living with active hepatitis B infection.

Opioids are the leading cause of mortality in some countries

Determining the extent of deaths attributed to the use of drugs is complicated. The definition of drug-related deaths can vary from country to country. In the absence of information surrounding the circumstances of the death or the environment in which the death occurred, ascertaining the cause of death can be complicated in cases where drug use is suspected of playing a part. Countries may be experiencing large increases in the number of deaths attributable to the use of drugs, but authorities may not be aware of this.

According to the Global Burden of Disease Study 2017, deaths attributed to the use of opioids is highest, and has shown the greatest increase, in North America. Canada and the United States continue to experience an opioid crisis, particularly related to the use of fentanyl and its analogues. The overdose mortality rates in the United States and Canada are high, and those countries are making considerable efforts to monitor the situation. In both countries, overdose deaths are not uniformly distributed throughout the country, but are concentrated in specific regions. In Canada, the highest rates are seen in the western provinces of Alberta and British Columbia. In the United States, the highest rates are seen in north-eastern and mid-western states.

Overdose deaths continued to rise in the United States in 2017, reaching a record number of 70,237 deaths, an increase of 10.4 per cent from 2016. Opioids accounted for 68 per cent of those overdose deaths, with 47,600 deaths in 2017. The increase in overdose deaths over the past five years closely corresponds with the increase in deaths from synthetic opioids other than methadone (a group consisting predominantly of fentanyl and its analogues). The rate of overdose deaths involving synthetic opioids other than methadone increased on average by 8 per cent per year from 1999 to 2013, but by 71 per cent per year from 2013 to 2017. There were 28,466 overdoses involving synthetic opioids other than methadone in 2017, an increase of 47 per cent from 19,413 in 2016.[69]

64 *Progress Report on Access to Hepatitis C Treatment.*

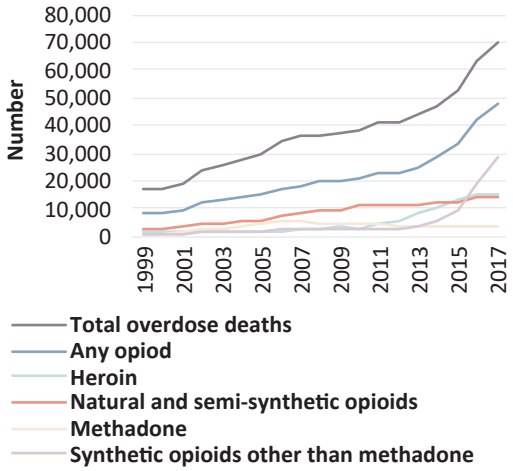
65 *European Drug Report 2018.*

66 *Progress Report on Access to Hepatitis C Treatment.*

67 WHO Regional Office for Europe, Action plan for the health sector response to viral hepatitis in the WHO European Region (Copenhagen, 2017).

68 The prevalence estimate for hepatitis B is intended to refer to active infection (HBsAg), rather than anti-HBc, which indicates previous exposure. However, it is not always possible to differentiate that in the data reported to UNODC.

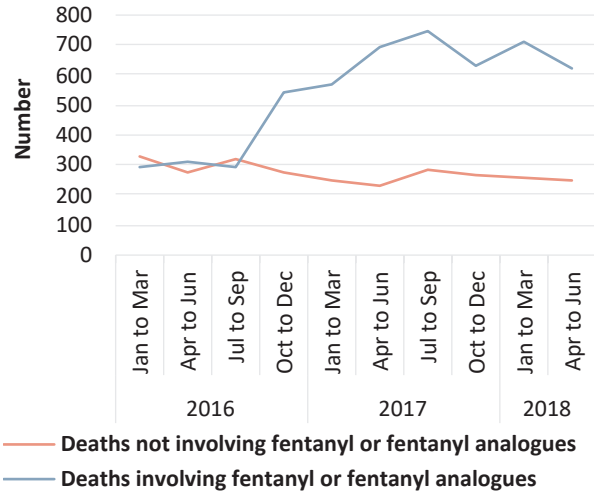
FIG. 12 Overdose deaths, by opioid category in the United States of America, 1999–2017



Source: Holly Hedegaard, Arialdi M. Miniño and Margaret Warner, "Drug overdose deaths in the United States, 1999–2017", NCHS Data Brief, No. 329 (Hyattsville, Maryland, United States, National Center for Health Statistics, November 2018).

Note: Deaths are classified using the International Classification of Diseases, 10th ed. Drug-poisoning (overdose) deaths are identified using underlying cause-of-death codes X40-X44 (accidental poisoning), X60-X64 (intentional self-poisoning), X85 (assault, including homicide) and Y10-Y14 (poisoning, undetermined intent). Drug overdose deaths involving selected drug categories are identified by specific multiple-cause-of-death codes: heroin, T40.1; natural and semi-synthetic opioids, T40.2; methadone, T40.3; and synthetic opioids other than methadone, T40.4.

FIG. 13 Accidental opioid-related overdose deaths in Canada, involving and not involving fentanyl or fentanyl analogues, by quarter, January 2016–June 2018



Source: Canada, Special Advisory Committee on the Epidemic of Opioid Overdoses, "National report: apparent opioid-related deaths in Canada", 12 December 2018.

In Canada, there were 3,998 opioid-related deaths in 2017 (of which 93 per cent were accidental overdoses; 5 per cent were suicide; and 3 per cent were undetermined). This was an increase of 33 per cent from the 3,014 opioid-related deaths in 2016.

Most of the opioid-related deaths in 2017 occurred among males (76 per cent), with those aged 30–39 accounting for the highest proportion (27 per cent). According to the Public Health Agency of Canada, fentanyl and its analogues have fuelled the rise in opioid-related deaths.[70] Fentanyl or fentanyl analogues were either detected and/or directly contributed to 69 per cent of those deaths in 2017, compared with 50 per cent in 2016.[71] In 2016 and 2017, the highest mortality rate and the largest number of overdose deaths (one third or more of the total) were in British Columbia. In British Columbia, overdose deaths reached 1,489 in 2018 (for all drug types), with more fatal overdoses occurring during the days immediately following income assistance payments (average of 5.2 overdose deaths per day) than for all other days of the month (average of 3.9 overdose deaths per day). The proportion of all overdose deaths in 2018 in which fentanyl was detected, either alone or in combination with other drugs, was 85 per cent.[72] Life expectancy at birth for people in British Columbia increased by 3 years

69 Holly Hedegaard, Arialdi M. Miniño and Margaret Warner, "Drug overdose deaths in the United States, 1999–2017", NCHS Data Brief, No. 329 (Hyattsville, Maryland, United States, National Center for Health Statistics, November 2018).

70 Lisa Belzak and Halverson Jessica, "Evidence synthesis: the opioid crisis in Canada – a national perspective", *Health Promotion and Chronic Disease Prevention in Canada: Research, Policy and Practice*, vol. 38, No. 6 (June 2018), pp. 224–233.

71 Canada, Special Advisory Committee on the Epidemic of Opioid Overdoses, "National report: apparent opioid-related deaths in Canada", 12 December 2018.

72 Canada, British Columbia Coroners' Service, "Illicit drug overdose deaths in B.C. January 1, 2008–December 31, 2018" (Burnaby, British Columbia, Office of the Chief Coroner, 7 February 2019). Available from www2.gov.bc.ca/gov/content/life-events/death/coroners-service/statistical-reports.

between 2001 and 2014 but decreased by 0.38 years from 2014 to 2016. The opioid overdose crisis has been determined to be an important contributor to that loss.[73]

In other regions, while opioids still cause the largest numbers of deaths, fentanyl and its analogues are not so prominent. In Europe, heroin or its metabolites, often in combination with other substances, are present in the majority of fatal overdoses, with the most recent data showing an increase in the number of heroin-related deaths.[74] Within the United Kingdom of Great Britain and Northern Ireland (which accounts for one third of all overdose deaths in Europe), there were 1,164 deaths involving heroin and morphine (46 per cent of all deaths from drug use) in England and Wales in 2017.[75] Deaths involving heroin and morphine increased from 579 in 2012 to 1,209 in 2016; the increase following the "heroin drought" that occurred in 2010 and 2011. That "drought" was followed by an increased purity of heroin, thought to be a factor in the increased number of overdoses. There were 75 deaths from fentanyl and its analogues in 2017. In Australia in 2016, there were 1,045 opioid-induced deaths, mostly attributed to the use of morphine, codeine, oxycodone and heroin, with little evidence of deaths attributed to the use of fentanyl occurring in large numbers in Australia.[76] The use of benzodiazepines was reported as having contributed to almost half (45 per cent) of the opioid-induced deaths, and antidepressants contributed to almost one in five deaths (23 per cent). There were 105 deaths from the use of amphetamine in 2016, although this is the highest rate since monitoring began, and there were fewer than 20 cocaine-induced deaths.

73 Xibiao Ye and others, "At a glance: impact of drug overdose-related deaths on life expectancy at birth in British Columbia", *Health Promotion and Chronic Disease Prevention in Canada*, vol. 38, No. 6 (June 2018), pp. 248–251.

74 *European Drug Report 2018*.

75 United Kingdom, Office for National Statistics, "Deaths related to drug poisoning in England and Wales: 2017 registrations", Statistical Bulletin (Newport, 6 August 2018).

76 Amanda Roxburgh and others, "Opioid-, amphetamine-, and cocaine-induced deaths in Australia" (Sydney, National Drug and Alcohol Research Centre, University of New South Wales, 2018).

Drug use, infectious diseases and the provision of prevention and treatment services in prison settings

There were an estimated 10.7 million people held in prisons[77] worldwide on any given day in 2017, either as pretrial detainees or remand prisoners or those who had been convicted and sentenced.[78] However, because of the movement of people in and out of prisons, the number of people who spend at least some time in prison each year is actually higher, although by how much has not been clearly determined.[79]

Prison populations are associated with substantially higher levels of infectious diseases than the surrounding communities. According to a systematic review, covering data published between 2005 and 2015, the prevalence of infectious diseases among the general prison population at the global level was estimated as follows: 3·8 per cent with HIV (based on 204 studies from 74 countries), 15·1 per cent with hepatitis C (based on 171 studies from 46 countries) and 2·8 per cent with active tuberculosis (based on 46 studies from 25 countries).[80] Many of those who enter prison have a history of drug use or drug use disorders.[81, 82] Overrepresentation of PWID among prison populations contributes to HIV prevalence in prison, particularly in countries where the HIV epidemic in communities is largely

77 Persons held in prisons or penal or correctional institutions.

78 Based on data from 224 countries and territories for 2017 (or latest year available) compiled from the United Nations Survey on Crime Trends and the Operations of Criminal Justice Systems (various years); and Roy Walmsley, "World prison population list", 12th ed. (London, Institute for Criminal Policy Research, 2018).

79 Stuart A. Kinner and Jesse T. Young, "Understanding and improving the health of people who experience incarceration: an overview and synthesis", *Epidemiologic Reviews*, vol. 40, No. 1 (June 2018), pp. 4–11.

80 Kate Dolan and others, "Global burden of HIV, viral hepatitis, and tuberculosis in prisoners and detainees", *The Lancet*, vol. 388, No. 10049 (2016), pp. 1089–1102.

81 Seena Fazel, Isabel A. Yoon and Adrian J. Hayes, "Substance use disorders in prisoners: an updated systematic review and meta-regression analysis in recently incarcerated men and women", *Addiction*, vol. 112, No. 10 (October 2017), pp. 1725–1739.

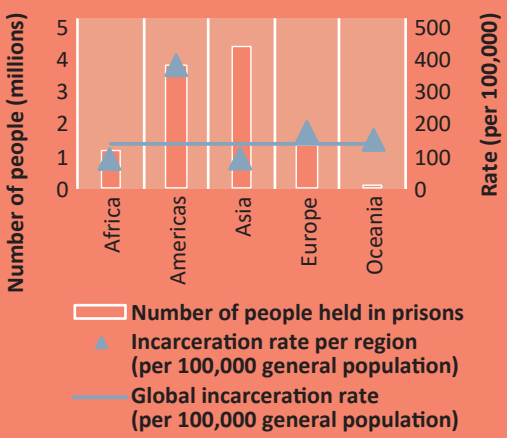
82 Adrian P. Mundt and others, "Substance use during imprisonment in low- and middle-income countries", *Epidemiologic Reviews*, vol. 40, No.1 (June 2018), pp. 70–81.

Prison populations: numbers and rates of incarceration

The numbers of people imprisoned, and the rates of incarceration, vary considerably between regions. More than one third of the global prison population of 10.7 million is held in Asia (41 per cent) and a similar proportion in the Americas (35 per cent). The Americas have by far the highest rate of incarceration, at almost three times the global rate of 142 per 100,000 population, while Africa and Asia have the lowest incarceration rates (both at approximately two thirds that global rate). Over 90 per cent of those held in prisons are male, and the proportion of all prisoners who are children (under 18 years of age) is estimated to be 1.0 per cent.[a]

Although the number of women in prison is much lower than the number of men, a higher proportion of women (35 per cent) than men (19 per cent) are in prison for drug-related offences.[b]

Number of people held in prisons, and incarceration rate, by region, 2017



Sources: United Nations Survey on Crime Trends and Operations of Criminal Justice Systems (various years); and Roy Walmsley, World Prison Population List",12th ed. (London, Institute for Criminal Policy Research, 2018).

Note: Based on data from 224 countries and territories for 2017 (or latest year available).

a Note by the Secretariat entitled "World crime trends and emerging issues and responses in the field of crime prevention and criminal justice" (E/CN.15/2014/5).

b According to reports from 50 Member States (UNODC, special data collections on persons held in prisons (2010–2014)).

driven by injecting drug use.[83] Drug users, in particular those who inject drugs, are placed in a high-risk environment where there are elevated levels of infectious diseases and where there is often an absence of prevention and treatment services for drug dependency and infectious diseases.[84]

This section presents recent evidence on drug use and drug use disorders prior to incarceration, drug use (including injecting drug use) while incarcerated, the prevalence of infectious diseases among PWID, and the global response in terms of the provision of needle-syringe programmes, opioid substitution therapy and testing and treatment for HIV, hepatitis C and active tuberculosis in prison settings. The evidence comes from a number of recent global systematic reviews. While most of the evidence is based on studies from developed countries, some studies from low- and middle-income countries are included. For more details on these systematic reviews, see the table on pages 40–41.

People with a history of drug use or drug use disorders form a substantial part of the prison population in some countries

Although the data are limited, there is some evidence that, in some high-income countries, people with drug use disorders form a large part of the prison population. Drug use disorders are highly prevalent among those entering prison, with a rate that is higher for women than for men. A systematic review identified studies on the past-year prevalence of drug use disorders[85] on admission to prison.[86] The

83 Kate Dolan and others, "People who inject drugs in prison: HIV prevalence, transmission and prevention", *International Journal of Drug Policy*, vol. 26, Suppl No. 1 (2015), pp. S12–S15.

84 Adeeba Kamarulzaman and others, "Prevention of transmission of HIV, hepatitis B virus, hepatitis C virus, and tuberculosis in prisoners", *The Lancet*, vol. 388, No. 10049 (2016), pp. 1115–1126.

85 Substance abuse and/or dependence based on clinical examination or by interviews using validated diagnostic instruments (*Diagnostic and Statistical Manual of Mental Disorders*, 3rd and 4th eds. (Washington, D. C., American Psychiatric Association, various years) and *International Classification of Diseases* 9th and 10th eds. (Geneva, World Health Organization, various years)), with diagnostics based on the preceding 12 months from the time when participants were interviewed/examined.

86 Fazel, Yoon and Hayes, "Substance use disorders in prisoners".

past-year prevalence of drug use disorders among those entering prison was 30 per cent for men (95 per cent confidence interval: 22–38 per cent) and 51 per cent for women (95 per cent confidence interval: 43–58 per cent). This contrasts with, for example, the past-year prevalence of drug use disorders in high-income countries of 2.9 per cent among the general population (those aged 12 and older) in the United States in 2015 and 0.9 per cent among the general population (those aged 16–85) in Australia in 2007.[87, 88] There was evidence of increasing drug use disorders among females on entry to prison over the previous three decades, with the rate increasing from 46 per cent (95 per cent confidence interval: 33–58 per cent) prior to the year 2000, to 54 per cent (95 per cent confidence interval: 47–62 per cent) from the year 2000 onwards. Data on the past-year prevalence of drug use disorders prior to imprisonment from low- and middle-income countries were found to be very sparse, with only two studies identified, both from South America. Both studies were excluded from the overall analysis to provide an estimate for the past-year prevalence of drug use disorders prior to imprisonment for high-income countries only. However, the past-year prevalence of drug use disorders on admission to prison from the two low- and middle-income country studies was at least 30 per cent.

A separate systemic review of studies from low- and middle-income countries demonstrated that many people who were incarcerated had a history of drug use prior to entering prison. The systematic review found that almost half (48 per cent) had used drugs at least once prior to incarceration (95 per cent confidence interval: 41–55 per cent).[89] While cannabis use was most common, the use of other drugs prior to incarceration was also reported: lifetime use of opiates was reported by 10.4 per cent (95 per cent confidence interval: 7–14 per cent); and a history of injecting drug use was reported by 9.5 per cent (95 per cent confidence interval: 7–13 per cent).

87 United States, Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality "Behavioral health barometer: United States, volume 4 – indicators as measured through the 2015 National Survey on Drug Use and Health and National Survey of Substance Abuse Treatment Services", HHS Publication No. SMA–17–BaroUS–16. (Rockville, Maryland, 2017).

88 Tim Slade and others, *The Mental Health of Australians 2: Report on the 2007 National Survey of Mental Health and Wellbeing* (Canberra, Department of Health and Ageing, 2009).

89 Mundt and others, "Substance use during imprisonment in low- and middle-income countries".

The use of drugs, including heroin, and injecting drug use have been documented in many prisons

Based on a total of 149 studies in 62 countries, an estimated one in three people held in prisons worldwide report that they have used drugs at least once while incarcerated (median and mean = 31 per cent), with one in five reporting past-month use (median and mean = 19 per cent). As in community settings, cannabis is the most popular drug. The past-month use of heroin (median = 2.2 per cent and mean = 4.9 per cent) is greater than of amphetamines, cocaine or "ecstasy".

Injecting drug use in prisons represents an especially high risk for the transmission of HIV and hepatitis C because of the high prevalence of HIV and hepatitis C in prison populations and because of the lack of availability of needles and syringes in most prison settings, which may prompt prisoners to share injecting equipment more often and among more people.[88, 91, 92] A systematic review identified studies on the lifetime prevalence of injecting drug use in prison.[93] A global estimate was not determined. However, the regions (the groupings are those as used by the authors) with the highest prevalence of injecting while incarcerated were Asia and the Pacific, Eastern Europe and Central Asia, where approximately one in five people held in prison have injected drugs at least once while incarcerated. By contrast, low levels of injecting drug use were found in prison in East, Southern, West and Central Africa, reflecting the low prevalence of injecting drug use among the general population in many countries in those subregions.

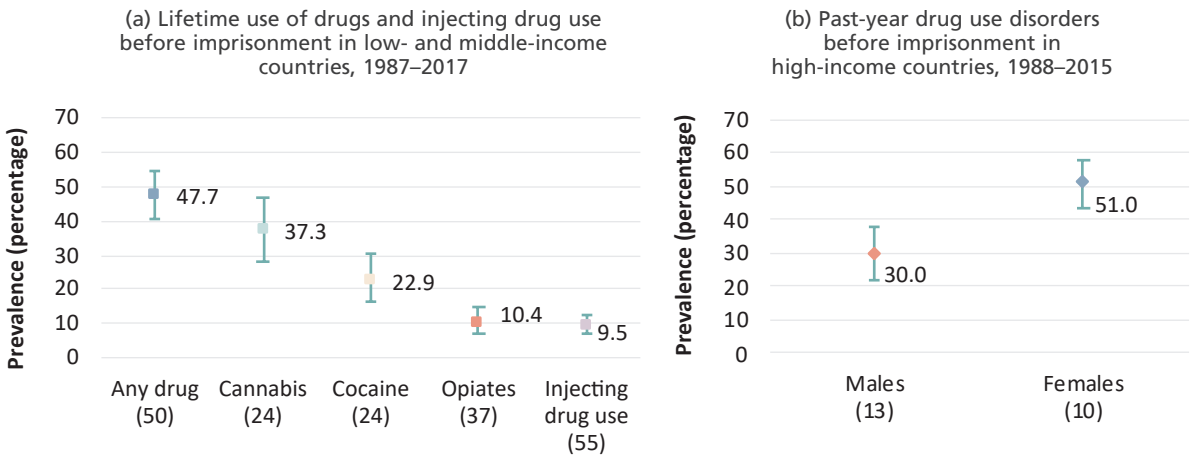
90 Dolan and others, "Global burden of HIV, viral hepatitis, and tuberculosis in prisoners and detainees".

91 Ralf Jürgens, Andrew Ball and Annette Verster, "Interventions to reduce HIV transmission related to injecting drug use in prison", *The Lancet Infectious Diseases*, vol. 9, No. 1 (January 2009), pp. 57–66.

92 Dolan and others, "People who inject drugs in prison".

93 Babak Moazen and others, "Prevalence of drug injection, sexual activity, tattooing, and piercing among prison inmates", *Epidemiologic Reviews*, vol. 40, No. 1 (June 2018), pp. 58–69.

FIG. 14 Drug use disorders and drug use prior to imprisonment



Sources: Seena Fazel, Isabel A. Yoon and Adrian J. Hayes, "Substance use disorders in prisoners: an updated systematic review and meta-regression analysis in recently incarcerated men and women", *Addiction*, vol. 112, No. 10 (October 2017), pp. 1725–1739; and Adrian P. Mundt and others, "Substance use during imprisonment in low- and middle-income countries", *Epidemiologic Reviews*, vol. 40, No.1, (June 2018), pp. 70–81.

Notes: Symbols represent pooled prevalence estimates, with vertical lines depicting 95 per cent confidence intervals. Data are not consistent across studies. The numbers within brackets on the horizontal axis represent the number of studies.

Two thirds of the world's prison population are incarcerated in low- and middle-income countries.[94] A systematic review of studies on the prevalence of drug use among people imprisoned in low- and middle-income countries estimated that one in four people in prison used drugs while incarcerated.[95] This was higher than for alcohol, which is estimated to be used by approximately one in six people during incarceration. Cannabis use during imprisonment was reported by 17 per cent and the use of opiates by 6 per cent. The prevalence of injecting drug use during imprisonment in low- and middle-income countries in Europe (6.5 per cent, 95 per cent confidence interval: 1.5–14.6 per cent) was found to be significantly higher than in Africa (0.0 per cent, 95 per cent confidence interval: 0.0–0.2 per cent). A comparison of prevalence rates before imprisonment with rates during imprisonment showed that those in prison were much more likely to continue to use opiates than either cannabis or cocaine.

94 Walmsley, "World prison population list".

95 Mundt and others, "Substance use during imprisonment in low- and middle-income countries".

Evidence points to high levels of HIV and hepatitis C among people who inject drugs in prison in some countries

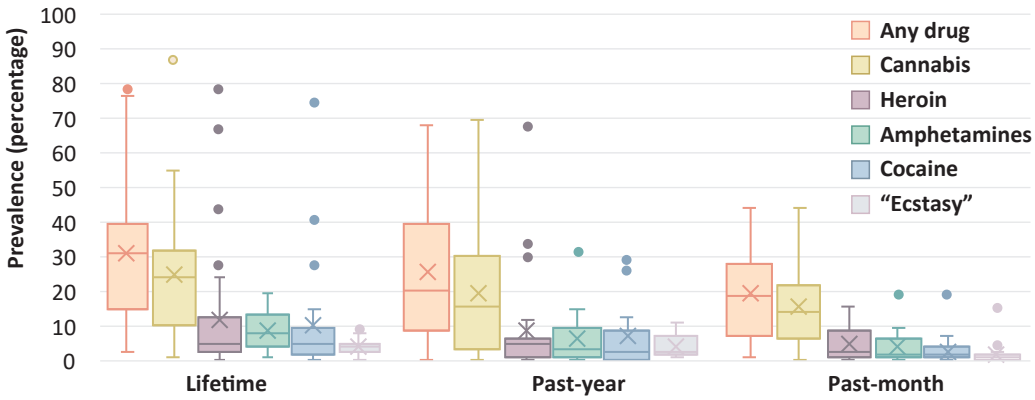
While the prevalence of HIV, hepatitis C and tuberculosis in the general prison population is much higher than in the general population outside prison settings,[96] the available data, although limited, point to rates that are substantially higher among people who inject drugs in prison (injected any drug before or during incarceration) compared with non-injecting prisoners. A systematic review identified studies on the prevalence of HIV and hepatitis C among PWID in prison.[97] Overall pooled prevalence estimates for HIV and hepatitis C among PWID in prison were not determined.[98] However, for the prevalence of HIV among PWID, the middle 50 per cent of the estimates ranged from 1.5 to 18 per

96 Dolan and others, "Global burden of HIV, viral hepatitis, and tuberculosis in prisoners and detainees".

97 Andrea L. Wirtz and others, "HIV and viral hepatitis among imprisoned key populations", *Epidemiologic Reviews*, vol. 40, No. 1 (June 2018), pp. 12–26.

98 A pooled analysis is a statistical technique for combining the results, in this case the prevalence from multiple epidemiological studies, to arrive at an overall estimate of the prevalence.

FIG. 15 Lifetime, past-year and past-month drug use while in prison, 2000–2017



Sources: UNODC, responses to annual report questionnaire; UNODC, *World Drug Report 2015* (Vienna 2015); EMCDDA, Statistical Bulletin (various years); and Adrian P. Mundt and others, "Substance use during imprisonment in low- and middle-income countries", *Epidemiologic Reviews*, vol. 40, No.1 (June 2018), pp. 70–81.

Note: Based on a total of 149 studies in 62 countries (number of countries by region: Africa, 7; Americas, 13; Asia, 11; Europe, 29; Oceania, 2). Data on lifetime, past-year and past-month use are not consistent for all studies. The shaded box depicts the central 50 per cent of the prevalence estimates (i.e., between the 25th and 75th percentiles). The horizontal line within the box represents the median prevalence. The cross represents the mean prevalence. The vertical line extending above and below the shaded box are drawn to the minimum and maximum prevalence, unless there are estimates that lie outside the range of 1.5 times the interquartile range (the difference between the 75th and 25th percentiles) beyond the shaded box. In this case, these prevalence estimates are considered unusually high and are marked with a dot, and the vertical line extends to the largest estimate that lies within the range 1.5 times the interquartile range from the shaded box.

cent, and for the prevalence of hepatitis C among PWID, the corresponding range was 41 to 75 per cent. PWID had 6.0 times the prevalence of HIV (95 per cent confidence interval: 3.8–9.4 per cent) and 8.1 times the prevalence of hepatitis C (95 per cent confidence interval: 6.4–10.4 per cent), compared with non-injecting prison populations.

In the same review, it was stated that the extent to which PWID acquire those diseases while they are incarcerated is not known; only one study could be located that provided an incidence estimate. However, there is evidence that a history of incarceration is associated with an increased risk of HIV and hepatitis C among PWID and could be an important driver of hepatitis C and HIV transmission among PWID.[99] Recent (in the past 3, 6 or 12 months, depending on the study) incarceration was associated with an 81 per cent increase in the risk of acquiring HIV and a 62 per cent increase in the risk of acquiring hepatitis C.[100] The enhanced risk arises not only during the time spent in the prison environment itself but also in periods of transition between prisons, and between prison and community settings, which can result in a return to drug use, loss of contact with health-care services, and disrupted or discontinued treatment.[101, 102]

Understanding the extent of tuberculosis in the general prison population is important, particularly for those, such as PWID, who are living with HIV, because tuberculosis is a leading cause of death among people living with HIV.[103, 104] Tuberculosis is spread from person to person through the air and is more easily transmitted among those in close proximity in conditions of overcrowding and poor

99 Jack Stone and others, "Incarceration history and risk of HIV and hepatitis C virus acquisition among people who inject drugs: a systematic review and meta-analysis", *The Lancet Infectious Diseases*, vol. 18, No. 12 (December 2018), pp. 1397–1409.

100 Based on data from 41 studies on PWID in community settings, published between 2000 and 2017.

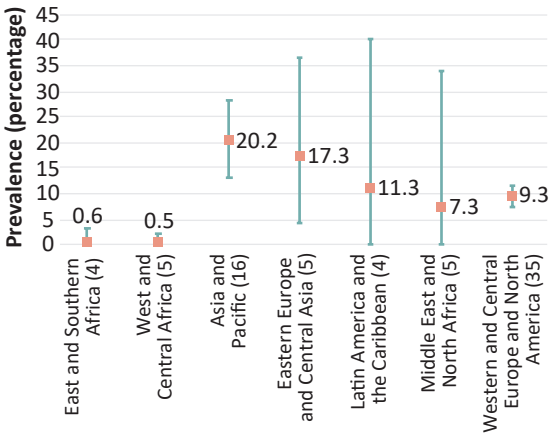
101 Josiah D. Rich and others, "Clinical care of incarcerated people with HIV, viral hepatitis, or tuberculosis", *The Lancet*, vol. 388, No. 10049 (2016), pp. 1103–1114.

102 Wirtz and others, "HIV and viral hepatitis among imprisoned key populations".

103 Candice K. Kwan and Joel D. Ernst, "HIV and tuberculosis: a deadly human syndemic", *Clinical Microbiology Reviews*, vol. 24, No. 2 (April 2011), pp. 351–376.

104 WHO, Global Tuberculosis Report 2016 (Geneva, 2016).

FIG. 16 Lifetime injecting drug use while in prison, by region, 2007–2017



Source: Babak Moazen and others, "Prevalence of drug injection, sexual activity, tattooing, and piercing among prison inmates", *Epidemiologic Reviews*, vol. 40, No. 1 (June 2018), pp 58–69.

Notes: Regional grouping are those used by the authors. Symbols represent pooled prevalence with vertical lines depicting 95 per cent confidence intervals. The numbers within brackets on the horizontal axis represent the number of studies.

ventilation, as often found in prison settings.[105, 106] Globally, an estimated 2.8 per cent of prisoners are living with active tuberculosis, a rate much higher than that among the general population, which is estimated at less than 0.2 per cent.[107]

Availability and coverage of services for HIV, hepatitis C and tuberculosis prevention and treatment for those incarcerated are limited in most prison settings

The core science-based interventions for the effective prevention of HIV and hepatitis C are needle-syringe programmes that provide sterile injecting equipment, and opioid substitution therapy to reduce dependency on opioids and hence decrease the frequency of injecting.[108] Testing and counselling are an important gateway into care, coupled with treatment to substantially reduce the viral load and the ongoing transmission of HIV and hepatitis C in prison.[109, 110, 111] Since tuberculosis is a leading cause of death among people living with HIV, testing and treatment for tuberculosis are critical, among PWID in particular, as they experience a much higher prevalence of HIV than non-injecting prisoners.

A recent systematic review of the literature, in combination with national surveys, assessed the availability and coverage of needle-syringe programmes, opioid substitution therapy and the provision of testing and treatment for HIV, hepatitis C and active tuberculosis in prison settings.[112, 113] A country was defined as providing the service if it was available in at least one prison. Data on the coverage of these services, that is to say, the proportion of prisons in the country that provide them, was found to be limited. Countries were grouped according to whether an intervention was provided in at least 50 per cent of prisons or in fewer than 50 per cent of prisons.

The study found that there are major gaps in the availability of needle-syringe programmes and opioid substitution therapy in prison, despite the high prevalence of the use of heroin and injecting drug use and the high burden of infectious diseases in many prisons, particularly among PWID. Even for those countries where a service was reported as

105 Masoud Dara and others, "Tuberculosis control in prisons: current situation and research gaps", *International Journal of Infectious Diseases*, vol. 32 (March 2015), pp. 111–117.

106 Iacopo Baussano and others, "Tuberculosis incidence in prisons: a systematic review", *PLOS Medicine*, vol. 7, No. 12 (December 2010), pp. 1–10.

107 WHO, Global Tuberculosis Report 2015 (Geneva, 2015).

108 UNODC, ILO, UNDP, WHO and UNAIDS, "HIV prevention, treatment and care in prisons and other closed settings: a comprehensive package of interventions", Policy brief (Vienna, 2013).

109 *Technical Guide for Countries to Set Targets for Universal Access to HIV Prevention, Treatment and Care for Injecting Drug Users: 2012 Revision*.

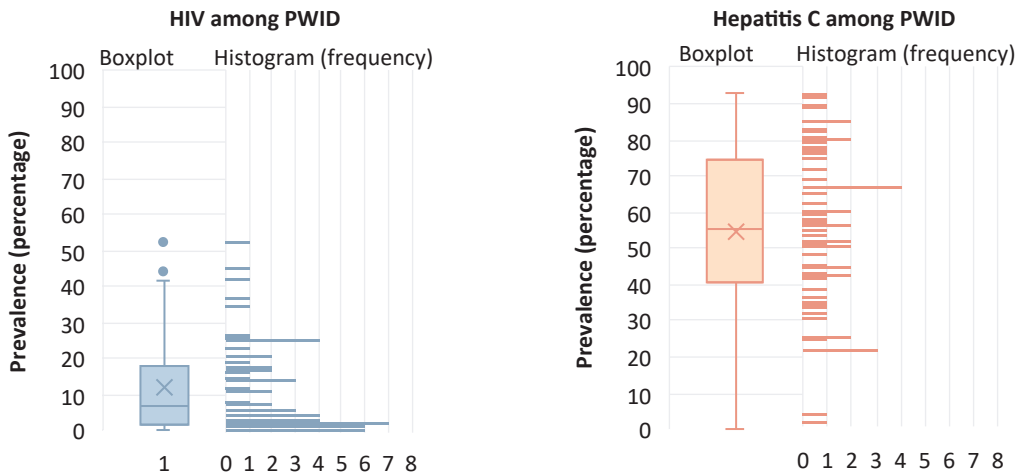
110 Katy M. E. Turner and others, "The impact of needle and syringe provision and opiate substitution therapy on the incidence of hepatitis C virus in injecting drug users: pooling of UK evidence", *Addiction*, vol. 106, No. 11 (November 2011), pp. 1978–1988.

111 Peter Vickerman and others, "Can needle and syringe programmes and opiate substitution therapy achieve substantial reductions in hepatitis C virus prevalence? Model projections for different epidemic settings", *Addiction*, vol. 107, No. 11 (November 2012), pp. 1984–1995.

112 Rebecca Bosworth, Babak Moazen and Kate Dolan, "HIV, viral hepatitis and TB in prison populations: a global systematic review and survey of infections and mortality, and provision of HIV services in prisons" (forthcoming).

113 Responses to the survey were received from 52 countries, with all regions represented.

FIG. 17 HIV and hepatitis C among people in prison who inject drugs,[a] 2005–2017



Source: Andrea L Wirtz and others, "HIV and viral hepatitis among imprisoned key populations", *Epidemiologic Reviews*, vol. 40, No. 1 (June 2018), pp. 12–26.

Notes: Based on 62 studies from 18 countries for HIV, and on 61 studies from 22 countries for hepatitis C. The shaded box depicts the central 50 per cent of the prevalence estimates (i.e., between the 25th and 75th percentiles). The horizontal line within the shaded box represents the median prevalence. The cross within the shaded box represents the mean prevalence. The vertical lines extending above and below the shaded box are drawn to the minimum and maximum prevalence, unless there are estimates that are outside the range of 1.5 times the interquartile range (the difference between the 75th and 25th percentiles) beyond the shaded box. In this case, these prevalence estimates are considered unusually high and are marked with a dot, and the vertical lines extend to the largest estimate that is within the range of 1.5 times the interquartile range from the shaded box.
a Injected any drug before or during incarceration.

available in prison, it does not necessarily mean that adequate coverage is being achieved or that the service provided is of a quality sufficient to obtain an effective gain in health outcomes.

The study identified evidence in 56 countries (in which 45 per cent of the global prison population are held) of the implementation of opioid substitution therapy in at least one prison, and it was confirmed not to be present in prison settings in 46 countries (in which 30 per cent of the global prison population are held). The proportion of prisons implementing opioid substitution therapy could be determined for 11 countries, with opioid substitution therapy in at least 50 per cent of prisons in 6 of those countries. Among the 46 countries where opioid substitution therapy was confirmed to be absent, there is evidence in 22 of them that such therapy is implemented in community settings.[114] Over the past two decades, there has been an increase in the number of countries implementing opioid substitution therapy in at least one prison, from 5 in 1996[115] to 29 in 2008[116] and 56 in 2017.

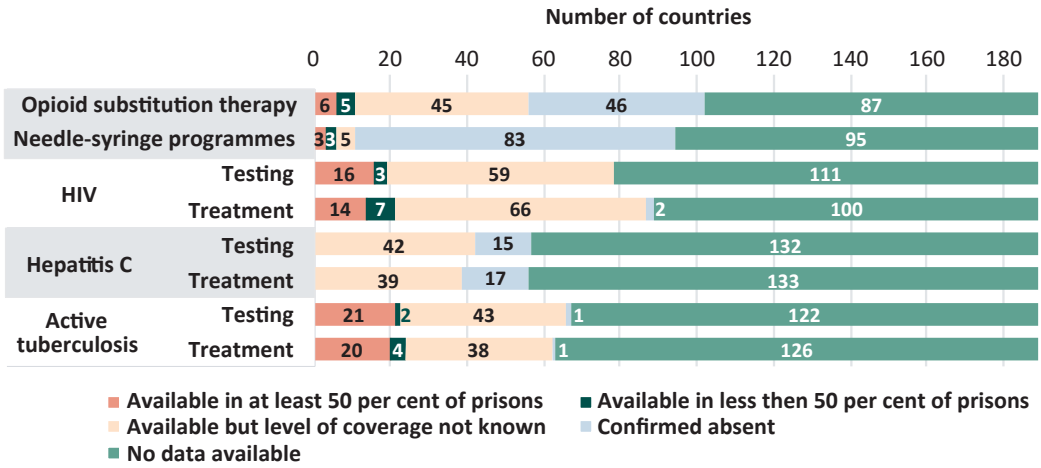
Needle-syringe programmes were found to be far less available in prison than opioid substitution therapy: 11 countries (in which 4 per cent of the global prison population are held) reported the availability of needle-syringe programmes in at least one prison, but such programmes were confirmed as absent in 83 countries (in which 68 per cent of the global prison population are held). The proportion of prisons implementing needle-syringe programmes could be determined for six countries, with such programmes being implemented in at least 50 per cent of prisons in three of those countries. Among the 83 countries where needle-syringe programmes were confirmed to be absent, there is evidence of the

114 Larney and others, "Global, regional, and country-level coverage of interventions to prevent and manage HIV and hepatitis C among people who inject drugs: a systematic review".

115 Kate Dolan and Alex Wodak, "An international review of methadone provision in prison", *Addiction Research*, vol. 4, No. 1 (1996), pp. 85–97.

116 Sarah Larney and Kate Dolan, "A literature review of international implementation of opioid substitution treatment in prisons: equivalence of care?", *European Addiction Research*, vol. 15, No. 2 (March 2009), pp. 107–112.

FIG. 18 Global availability, non-availability and coverage of core interventions for the prevention and treatment of HIV, hepatitis C and active tuberculosis in prison, 2013–2017



Source: Rebecca Bosworth, Babak Moazen and Kate Dolan, "HIV, viral hepatitis and TB in prison populations: a global systematic review and survey of infections and mortality, and provision of HIV services in prisons" (forthcoming).

Note: Total number of countries included is 189. A country was defined as providing the service if it was available in at least one prison.

provision of such programmes in community settings in 62 of them.[117]

The provision of opioid substitution therapy and needle-syringe programmes in combination can be particularly effective in preventing the spread of HIV and hepatitis C.[118, 119] There were 10 countries (in which 3.9 per cent of the global prison population are held) that provided both needle-syringe programmes and opioid substitution therapy in at least one prison, although not necessarily in the same prisons.

The prevalence of injecting drug use in prisons is highest in Asia and the Pacific, Eastern Europe and Central Asia, where approximately one in five prisoners are estimated to have injected drugs at least once while incarcerated.[120] However, none of the prisons in the 37 countries in the Asia and Pacific region provided needle-syringe programmes and only 9 countries implemented opioid substitution therapy. In Eastern Europe and Central Asia, 5 out of 16 countries provided needle-syringe programmes in at least one prison and 8 countries provided opioid substitution therapy, with 4 countries providing both services in at least one prison.

The high prevalence of hepatitis C in prison populations, especially among PWID, and the considerable burden of disease associated with untreated hepatitis C underscore the need for testing and access to treatment for hepatitis C in prison settings. However, fewer countries report the availability of testing and treatment for hepatitis C than for HIV or tuberculosis, with more countries confirming that testing and treatment for hepatitis C were absent. Highly effective direct-acting antiviral drugs are now available, offering new hope for treatment and reducing the burden of hepatitis C in prison settings. However, affordability has been a substantial barrier to the expansion of their use, and access to those medications is often restricted to individuals who are classified as high-priority

117 Larney and others, "Global, regional, and country-level coverage of interventions to prevent and manage HIV and hepatitis C among people who inject drugs".

118 Natasha K. Martin and others, "Combination interventions to prevent HCV transmission among people who inject drugs: modeling the impact of antiviral treatment, needle and syringe programs, and opiate substitution therapy", *Clinical Infectious Diseases*, vol. 57, Suppl. No. 2 (August 2013), pp. S39–S45.

119 Louisa Degenhardt and others, "Prevention of HIV infection for people who inject drugs: why individual, structural and combination approaches are needed", *The Lancet*, vol. 376, No. 9737 (July 2010), pp. 285–301.

120 Moazen and others, "Prevalence of drug injection, sexual activity, tattooing, and piercing among prison inmates".

candidates for treatment, such as those with cirrhosis, in both community and prison settings.[121, 122] Recent information on the coverage of direct-acting antivirals in prison settings is scarce.[123, 124, 125] In European countries, for example, while testing for infectious diseases is available in prison in most countries, treatment for hepatitis C of any kind is uncommon.[126] A systematic review of hepatitis C treatment provision in prison in Europe identified reports of the provision of direct-acting antivirals in prisons in three countries (France and Italy and Spain) with the possible improvements brought about by the introduction of direct-acting antivirals in prison settings yet to be reported on in peer-reviewed literature.[127]

HIV treatment not only improves health outcomes for the individual, it also reduces the viral load to the point where the risk of onward transmission is substantially decreased. Given the role of HIV in the development of active tuberculosis disease and the health implications of tuberculosis for those with HIV, addressing both infections in an integrated manner is important.[128] At the global level, treatment is provided (in at least one prison) for HIV and tuberculosis in 61 countries, although not necessarily at the same time or in the same location.

The availability of treatment services for drug use, including pharmacological and psychosocial treatment, and services for social rehabilitation and aftercare, remains much lower in prison than in the community.[129]

Entering, transferring and being released from prison have been recognized as periods of increased vulnerability. The immediate period after release from prison has been identified as a critical time, with a high risk of relapse to drug use, including injecting, and fatal drug overdose.[130, 131, 132] Continuity of care for those incarcerated is key to ensuring that the benefits of treatment for drug use disorders and infectious diseases that was started before or during imprisonment are not lost.[133] However, released prisoners are rarely able to access overdose prevention and management interventions or medications (such as naloxone or methadone) or treatment for substance use disorders, and are either not linked to HIV, hepatitis C or drug treatment services upon release, or are provided with only some of those services.[134]

121 Alison D. Marshall and others, "The removal of DAA restrictions in Europe: one step closer to eliminating HCV as a major public health threat", *Journal of Hepatology*, vol. 69, No. 5 (November 2018), pp. 1188–1196.

122 Rachel E. Simon and others, "Tackling the hepatitis C cost problem: a test case for tomorrow's cures", *Hepatology*, vol. 62, No. 5 (November 2015), pp. 1334–1336.

123 Karli R. Hochstatter and others, "The continuum of hepatitis C care for criminal justice involved adults in the DAA era: a retrospective cohort study demonstrating limited treatment uptake and inconsistent linkage to community-based care", *Health & Justice*, vol. 5, No. 10 (2017), pp. 1–10.

124 European Centre for Disease Prevention and Control and EMCDDA, *Public Health Guidance on Prevention and Control of Blood-borne Viruses in Prison Settings* (Stockholm, 2018).

125 European Centre for Disease Prevention and Control, *Systematic Review on the Prevention and Control of Blood-borne Viruses in Prison Settings* (Stockholm, 2018).

126 EMCDDA, *Health and Social Responses to Drug Problems: A European Guide* (Luxembourg: Publications Office of the European Union, 2017).

127 Hilde Vroling and others, "A systematic review on models of care effectiveness and barriers to hepatitis C treatment in prison settings in the EU/EEA", *Journal of Viral Hepatitis*, vol. 25, No. 12 (December 2018), pp. 1406–1422.

128 WHO, "WHO policy on collaborative TB/HIV activities: guidelines for national programmes and other stakeholders" (Geneva, 2012).

129 Report of the Executive Director on action taken by Member States to implement the Political Declaration and Plan of Action on International Cooperation towards an Integrated and Balanced Strategy to Counter the World Drug Problem (E/CN.7/2018/6).

130 Kamarulzaman and others, "Prevention of transmission of HIV, hepatitis B virus, hepatitis C virus, and tuberculosis in prisoners".

131 WHO Regional Office for Europe, "Preventing overdose deaths in the criminal-justice system", revised ed. (Copenhagen, 2014).

132 Wirtz and others, "HIV and viral hepatitis among imprisoned key populations".

133 WHO Regional Office for Europe, *Prisons and Health* (Copenhagen, 2014).

134 Leonard S. Rubenstein and others, "HIV, prisoners, and human rights", *The Lancet*, vol. 388, No. 10050 (2016), pp. 1202–1214.

TABLE 1 Study details of recent global systematic reviews on drug use, infectious diseases and the provision of prevention and treatment services in prison settings

Indicator	Past-year prevalence of drug use disorders prior to imprisonment
Source:	Seena Fazel, Isabel A. Yoon and Adrian J. Hayes, "Substance use disorders in prisoners: an updated systematic review and meta-regression analysis in recently incarcerated men and women", Addiction, vol. 112, No. 10 (October 2017), pp. 1725–1739.
Geographical coverage:	High-income countries (mostly the United States of America: 11 of 23 studies)
Time period:	1988–2015
Number of studies:	Men – 13 studies from 8 countries involving 5,750 prisoners Women – 10 studies from 4 countries involving 4,379 prisoners
Indicator	**Lifetime prevalence of drug use prior to imprisonment**
Source:	Adrian P. Mundt and others, "Substance use during imprisonment in low- and middle-income countries", Epidemiologic Reviews, vol. 40, No.1, (June 2018), pp. 70–81.
Geographical coverage:	Low- and middle-income countries
Time period:	1987–2017
Number of studies:	Any drug use – 50 studies from 21 countries Opiates – 37 studies from 22 countries Cannabis – 24 studies from 12 countries Cociane – 24 studies from 10 countries Injecting drug use – 55 studies from 27 countries
Indicator	**Lifetime prevalence of drug use within prison**
Source:	Adrian P. Mundt and others, "Substance use during imprisonment in low- and middle-income countries", Epidemiologic Reviews, vol. 40, No.1 (June 2018), pp. 70–81.
Geographical coverage:	Low- and middle-income countries
Time period:	1987–2017
Number of studies:	Any drug use – 26 studies from 14 countries Opiates – 26 studies from 14 countries Cannabis – 30 studies from 16 countries Cocaine – 20 studies from 8 countries Injecting drug use – 28 studies from 16 countries
Indicator	**Lifetime injecting drug use within prison**
Source:	Babak Moazen and others, Prevalence of drug injection, sexual activity, tattooing, and piercing among prison inmates, Epidemiologic Reviews, vol. 40, No. 1 (June 2018), pp 58-69.
Geographical coverage:	Global
Time period:	2007–2017
Number of studies:	71 studies from 36 countries

Indicator	Prevalence of HIV and hepatitis C among people who inject drugs in prisons
Source:	Andrea L Wirtz and others, "HIV and viral hepatitis among imprisoned key populations", Epidemiologic Reviews, vol. 40, No. 1 (June 2018), pp. 12–26.
Geographical coverage:	Mostly from middle- and high-income countries in Middle East and North Africa, and Asia and the Pacific
Time period:	2005–2017
Number of studies:	HIV – 62 studies from 18 countries Hepatitis C – 61 studies from 22 countries

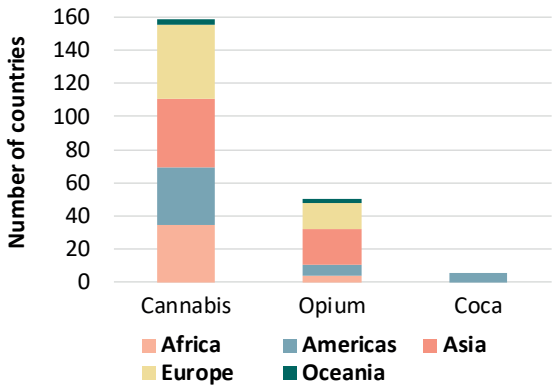
Indicator	Availability of needle-syringe programmes, opioid substitution therapy, and testing and treatment for infectious diseases
Source:	Rebecca Bosworth, Babak Moazen and Kate Dolan, "HIV, viral hepatitis and TB in prison populations: A global systematic review and survey of infections and mortality, and provision of HIV services in prisons" (forthcoming).
Geographical coverage:	Global – with all regions represented
Time period:	2013–2017
Number of studies:	Needle and syringe programmes (NSP) – 94 countries Opioid substitution therapy (OST) – 102 countries HIV – 78 countries (testing) and 89 countries (treatment) Hepatitis C – 57 countries (testing) and 56 countries (treatment) Active tuberculosis – 67 countries (testing) and 63 countries (treatment)

DRUG SUPPLY

Cannabis continues to be the most widely produced substance

Cannabis continues to be the most widely produced drug worldwide. Over the period 2010–2017, illicit cultivation of cannabis was reported, directly or indirectly, to UNODC by 159 countries located in all regions, covering 97 per cent of the global population. That is more than three times the 50 countries, most of them in Asia, reporting opium poppy cultivation and far more than the number of countries, all of them in the Americas, indicating that coca bush cultivation takes place on their territory.

FIG. 19 Number of countries reporting illicit drug cultivation,[a] 2010–2017



Source: UNODC, responses to the annual report questionnaire.

[a] *Countries reporting the cultivation, production and eradication of cannabis plants, opium poppy and coca bush, countries reporting seizures of cannabis plants, opium poppy plants and coca bush, and countries identified by other Member States as countries of origin of cannabis plants, opium poppy plants, opium and coca leaf.*

Cultivation of opium poppy declined in 2018, while cultivation of coca bush continued to increase

Despite a decline of roughly 17 per cent in 2018, to 346,000 ha, the global area under illicit opium poppy cultivation continues to be more than 60 per cent larger than it was a decade ago and significantly larger than the global area under coca bush cultivation.

The decline in the global area under opium poppy cultivation in 2018 was primarily a result of the decrease in opium cultivation in Afghanistan, which declined by 20 per cent across the country. However, with 263,000 ha, [135] Afghanistan again accounted for the largest area globally under illicit opium poppy cultivation in 2018. Although the decline in opium poppy cultivation in Afghanistan in 2018 was mainly the result of a drought, low opium prices may have led to a decrease in opium poppy cultivation in provinces not affected by the drought. Over the period 2016–2018, opium prices in Afghanistan fell rapidly, probably as a consequence of overproduction in previous years.

Contributing to the overall decline in global opium poppy cultivation, opium poppy cultivation in Myanmar, the second-largest producer of opium worldwide, continued to decrease. It fell by 12 per cent in 2018 to reach 37,300 ha. This was possibly prompted by an intensification of alternative development efforts in combination with falling opium prices, which resulted from a decrease in the demand for opium from Myanmar as drug use in East and South-East Asia shifted towards synthetic drugs, in particular methamphetamine.[136]

After Afghanistan and Myanmar, the largest area under opium poppy cultivation is found in Mexico (30,600 ha in the period July 2016 to June 2017).[137]

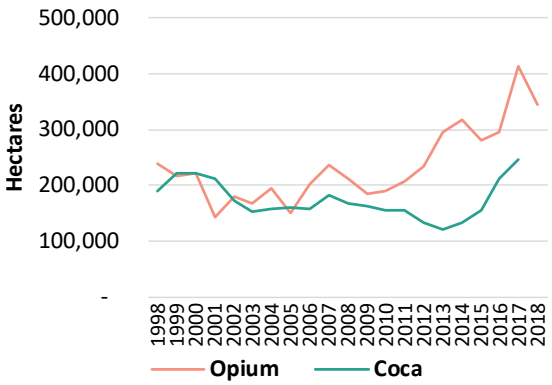
Having declined by 45 per cent over the period 2000–2013, global coca bush cultivation showed a clear upward trend over the period 2013–2017, increasing by more than 100 per cent. Increases were reported in all three Andean countries in 2016 and 2017, resulting in annual increases in global coca bush cultivation of 36 per cent from 2015 to 2016 and 15 per cent from 2016 to 2017, reaching an all-time high of 245,000 ha. About 70 per cent of the area under coca bush cultivation in 2017 was located in Colombia, 20 per cent in Peru and 10 per cent in the Plurinational State of Bolivia.

135 UNODC and Afghanistan, Ministry of Counter Narcotics, *Afghanistan Opium Survey 2018: Cultivation and Production* (November 2018).

136 UNODC and Myanmar, Central Committee for Drug Abuse Control, *Myanmar Opium Survey 2018: Cultivation, Production and Implications* (Bangkok, 2019).

137 UNODC, *México: Monitoreo de Cultivos de Amapola 2015–2016 y 2016–2017* (November 2018). At the time of drafting the present report, no data for 2018 were available for Mexico.

FIG. 20 Total area under opium and coca bush cultivation worldwide, 1998–2018



Sources: UNODC coca and opium surveys in various countries; responses to the annual report questionnaire; and United States of America, Department of State, *International Narcotics Control Strategy Report*, various years.

The declines and increases in coca bush cultivation over the past two decades have primarily been a consequence of changes in Colombia. Cultivation declined in Colombia over the period 2000–2013 in parallel with the implementation of a broad range of interventions, including aerial spraying, manual eradication and, particularly after 2007, alternative development. After 2012, the areas under coca cultivation that were fumigated and/or manually eradicated declined from some 130,000 ha to 18,300 ha in 2016 before increasing again to 53,600 ha in 2017. This decline in eradication went hand in hand with an intensification of law enforcement efforts against the manufacture of cocaine in Colombia.[138]

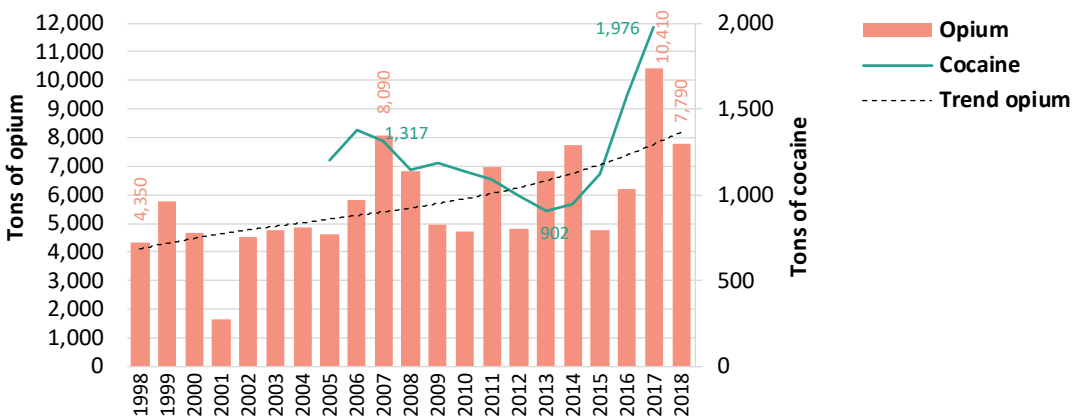
Global opium production declined in 2018 but remained at a high level

Global opium production has followed a long-term upward trend over the past two decades, although with significant annual fluctuations. In 2018, global opium production fell by 25 per cent compared with the previous year, to 7,790 tons, which is still the third-largest total since UNODC started systematically monitoring opium production, in the 1990s.

The three main opium-producing countries (Afghanistan, Mexico and Myanmar) are estimated to have been responsible for roughly 96 per cent of the estimated global total opium production in 2018, with Afghanistan alone accounting for 82 per cent of that total.

The global decline in global opium production in 2018 was mainly the result of a poor opium harvest in Afghanistan (which fell by 29 per cent compared

FIG. 21 Global opium production and cocaine[a] manufacture, 1998–2018



Sources: UNODC, Coca and opium surveys in various countries; responses to the annual report questionnaire; and United States of America, Department of State, *International Narcotics Control Strategy Report*, various years.

[a] *Expressed at a hypothetical manufacturing output level of 100 per cent pure cocaine; actual cocaine manufacturing output, unadjusted for purity, is significantly higher.*

138 A more detailed discussion on changes in coca cultivation can be found in Booklet 4 (*Stimulants*) of the present report.

with 2017, to 6,400 tons), reflecting a 20 per cent decrease in the size of the area under cultivation and an 11 per cent decrease in yield. A drought appears to have been an important factor in this decline, as it affected not only rain-fed land, but also irrigated areas as a result of restricted water availability following limited snowfall in the winter of 2017–2018.

In addition, opium production in Myanmar declined slightly, from 550 tons in 2017 to 520 tons in 2018, thus continuing the recent downward trend (a decrease of 20 per cent since 2015). This is possibly a consequence of a decrease in the demand for Myanmar-sourced opiates, which may be the result of the massive opium production in Afghanistan in 2017 as well as shifts towards the use of synthetic drugs in the drug markets of East and South-East Asia.[139]

Despite the decline in global opium production in 2018, there are no indications of a shortage in the supply of heroin to consumer markets.[140] Moreover, the prices of both opium and heroin continued to decline in 2018 in the main opium production areas of Afghanistan and Myanmar. Estimated opium production in 2018 would have been sufficient to manufacture 486–736 tons of heroin (expressed at export purity), once opium consumption is taken into account.

Cocaine manufacture has reached its highest level ever

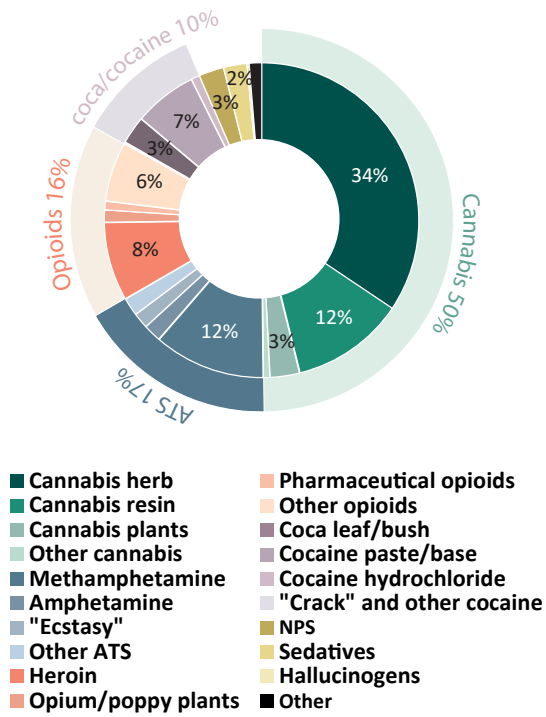
Global cocaine manufacture, which had fallen by 35 per cent over the period 2006–2013, more than doubled over the period 2013–2017 and increased by 25 per cent from 2016 to 2017, to reach 1,976 tons (expressed at a purity of 100 per cent). That record level was primarily the result of increases in Colombia, although cocaine manufacture also increased in Peru and in the Plurinational State of Bolivia.

In Colombia, cocaine manufacture more than quadrupled over the period 2013–2017. The amount of coca leaf produced in Colombia in 2017 increased more (32 per cent) than the area under coca cultivation (17 per cent), resulting in a 31 per cent increase in cocaine manufacture, to 1,379 tons, equivalent to about 70 per cent of global cocaine manufacture.

139 UNODC and Myanmar, Central Committee for Drug Abuse Control, *Myanmar Opium Survey 2018*.

140 UNODC has not received any reports of rising heroin prices or decreases in the purity of heroin in the main heroin consumer markets.

FIG. 22 Global distribution of number of drug seizure cases, 2016–2017, by drug type



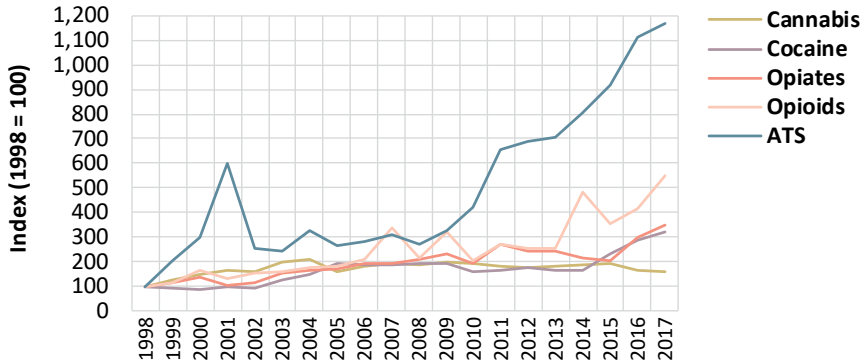
Source: UNODC, responses to the annual report questionnaire.

Note: The calculations are based on a breakdown of 5.3 million seizures cases reported to UNODC over the period 2016–2017 (2.54 million cases in 2016 and 2.73 million cases in 2017). Seizure case data is based on information from 70 countries for 2016 and 71 countries for 2017.

Quantities of drugs seized have increased, with synthetic drugs accounting for the largest growth

Global drug seizure cases continue to be dominated by cannabis, but most of the growth in the number of cases is accounted for by other drugs. A total of 71 Member States reported 2.5 million seizure cases to UNODC in 2016 and 2.7 million seizure cases in 2017, half of which were of cannabis, mostly in herbal form.

FIG. 23 Long-term trend in quantities of drugs seized (based on kilogram equivalents), 1998–2017



Source: UNODC, responses to the annual report questionnaire.

Note:
Cannabis: cannabis herb and cannabis resin
Opiates: opium expressed in heroin equivalents, plus morphine and heroin
Opioids: opiates plus pharmaceutical opioids and other opioids
Cocaine: cocaine hydrochloride, "crack" cocaine, cocaine base, paste and salts, coca paste/cocaine base
ATS: methamphetamine, amphetamine and "ecstasy"

The Office's most comprehensive data set is on the quantities of drugs seized, comprising data from 202 countries over the period 1998–2017 (an average of 155 countries per year). While the quantity of cannabis seized in that period grew by 60 per cent,[141] the quantity of opiates and of cocaine seized tripled, the quantity of opioids (opiates and synthetic opioids) seized quintupled and the quantity of ATS seized increased more than tenfold. The first seizures of synthetic NPS recorded in the UNODC database took place in 2001. Compared with the amounts reported seized in 2001, the quantities of synthetic NPS seized in 2017 were more than 400 times larger. All of this indicates that the most marked increase in the drugs seized over the past two decades has been in synthetic drugs, i.e., synthetic NPS, followed by ATS and synthetic opioids.

Opioids, cocaine and plant-based NPS account for the largest growth in the quantities of drugs seized over the past five years

Over the period 2013–2017, opioids accounted for the largest increase in the quantities of a drug seized: the quantities doubled over that period, reflecting, among other things, the current opioid crisis in North America. Cocaine accounted for the next-largest increase, which is a consequence of the rapid expansion of cocaine supply in recent years. That increase was followed by increases in the quantities of plant-based NPS. The overall quantities of plant-based and synthetic NPS seized rose by 78 per cent, the quantities of ATS seized rose by 65 per while the quantities of cannabis seized decreased by 12 per cent.

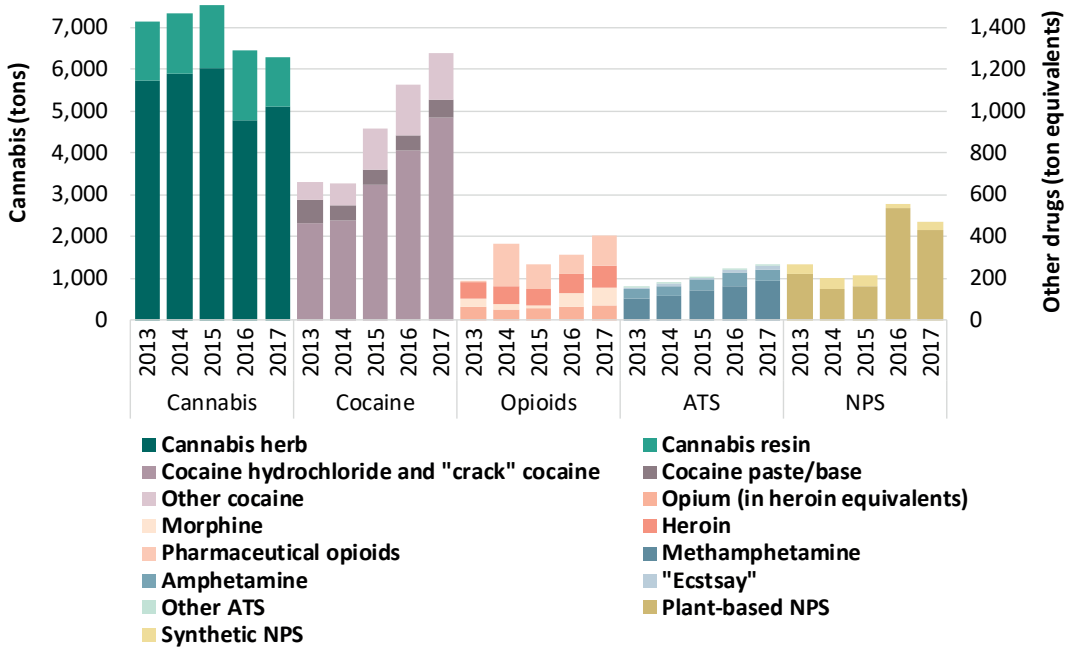
Cannabis is seized in the largest quantities globally, followed by coca and cocaine-related substances

The largest quantities of drugs seized at the global level in 2017 continued to be cannabis, followed by coca and cocaine-related substances, opioids, NPS and ATS (mostly methamphetamine). The quantities of cannabis herb seized were larger than those of cannabis resin and cannabis oil and, in contrast to the previous year, larger than those of cannabis plants. The largest quantities of cannabis herb seized in 2017 were reported, for the first time, by Paraguay, followed by the United States and Mexico. The largest quantities of cannabis resin seized were reported by Spain, followed by Pakistan and Morocco.

The quantities of cocaine HCl seized turned out to be not only larger than those of coca base, coca paste

141 This consisted of a 30 per cent increase in the amount of cannabis resin seized and a 70 per cent increase in the amount of cannabis herb seized.

FIG. 24 Short-term trends in quantities of drugs seized, 2013–2017



Source: UNODC, responses to the annual report questionnaire.

and "crack" cocaine, but also larger than those of coca leaf and coca bush. The largest quantities of cocaine (cocaine HCl, "crack" cocaine, cocaine base and paste) intercepted in 2017 continued to be reported by Colombia, followed by the United States and Ecuador.

The largest quantities of opioids seized were of opium. However, when only opiates are considered and analysed in morphine equivalents,[142] heroin appears to have been the most trafficked opiate. For the second year in a row, the largest amounts of heroin and morphine seized in 2017 were reported by Afghanistan, followed by the Islamic Republic of Iran and Pakistan.

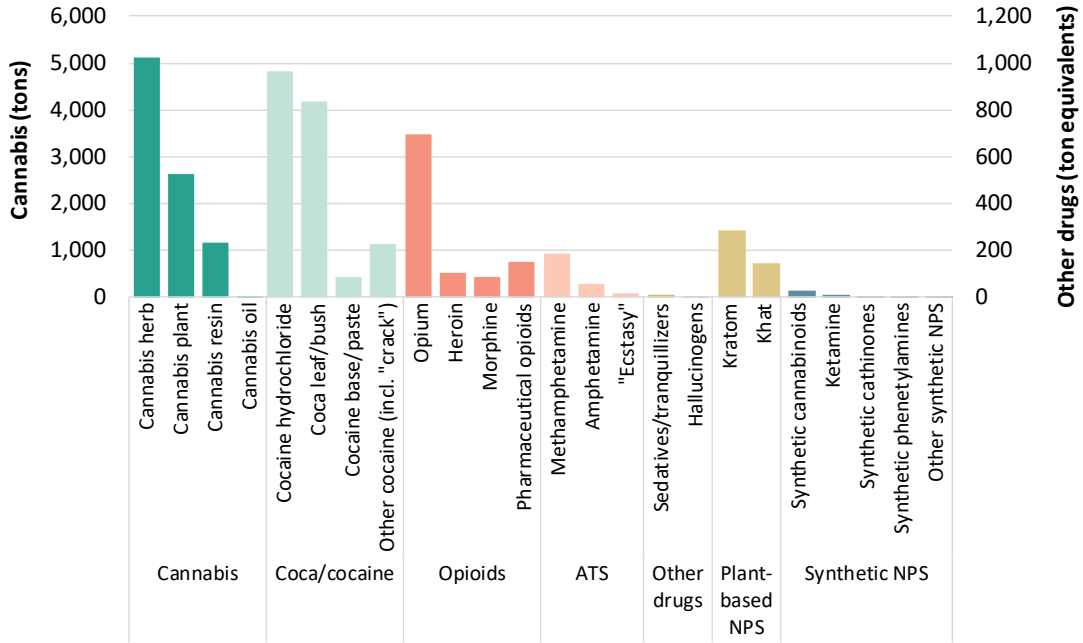
In the past few decades, the quantities of heroin seized tended to be larger than those of pharmaceutical opioids, but data show that the quantities of pharmaceutical opioids seized in 2017 were larger, for the third time since 2014. In terms of quantity, the largest seizures of synthetic opioids at the global level were again of tramadol, an opioid not under international control, followed by codeine and fentanyl. Nigeria reported seizing the largest quantities of synthetic opioids in 2017, followed by Egypt; in both countries,the majority of seizures were of tramadol. Given that far more doses can be obtained from fentanyl (and its analogues) than from any other opioid, that drug accounted for the most doses of pharmaceutical opioids seized in both 2016 and 2017.[143] Indeed, expressed in "daily defined doses for statistical purposes", almost 80 per cent of all the pharmaceutical opioids seized in 2017 were fentanyl (and its analogues).[144] As in the previous two years, most fentanyl (including its analogues) was seized in the United States, followed by Canada and Estonia.

142 Based on a conversion of 10 kg of opium being equivalent to 1 kg of morphine or heroin.

143 See the online methodological annex of the present report for detailed calculations on the quantities seized expressed in estimated number of doses.

144 Based on the "defined daily doses for statistical purposes" set out in *Narcotic Drugs: Estimated World Requirements for 2018–Statistics for 2016* (E/INCB/2017/2); and *Psychotropic Substances: Statistics for 2016–Assessments of Annual Medical and Scientific Requirements for Substances in Schedules II, III and IV of the Convention on Psychotropic Substances of 1971* (E/INCB/2017/3).

FIG. 25 Global quantities of drugs seized, 2017



Source: UNODC, responses to the annual report questionnaire, based on information from 124 countries.
Note: Quantities seized were not adjusted for purity or potency.

Reflecting data reported over the past two decades, the largest quantities of ATS seized in 2017 were of methamphetamine, followed by amphetamine and "ecstasy". The largest quantities of ATS seized in 2017 were reported by the United States, followed by Thailand, Mexico, China and Saudi Arabia.

Most of the sedatives and tranquillizers seized in 2017 were of methaqualone and were seized mostly in South Africa, India and Mozambique; this was followed by GHB, which was mostly seized in the United States, followed by Australia and Norway.

Dominated in the past by LSD, in 2017, seizures of hallucinogens were dominated by dimethyltryptamine (DMT). The largest quantities of DMT seized were reported by the United States, followed by the Netherlands, Italy and Canada.

The largest quantities of plant-based NPS seized in 2017 were, for the second year in a row, of kratom (*Mitragyna speciosa*), followed by khat and smaller quantities of the hallucinogen *Datura stramonium*, none of which are under international control. Most of the kratom was seized in Malaysia, followed by Thailand and Myanmar. Most of the khat was reported to have been seized in the United States, followed by the Netherlands and the United Republic of Tanzania.

The largest quantities of synthetic NPS seized in 2017 continued to be of synthetic cannabinoids, followed by ketamine, synthetic cathinones, tryptamines and phenetylamines. Most synthetic NPS were seized in the United States, followed by China and the Russian Federation. While seizures of synthetic NPS in the United States were dominated by synthetic cannabinoids, in China they were dominated by ketamine and in the Russian Federation by synthetic cathinones (mostly metamfepramone, also known as dimethylcathinone).

Seizures of new psychoactive substances may be stabilizing

Seizures of NPS, i.e., substances that mimic substances under international control but are not under international control themselves, have shown a clear upward trend over the last decade. A time-series of seizures of plant-based NPS reported to UNODC shows the growing importance of kratom in 2016

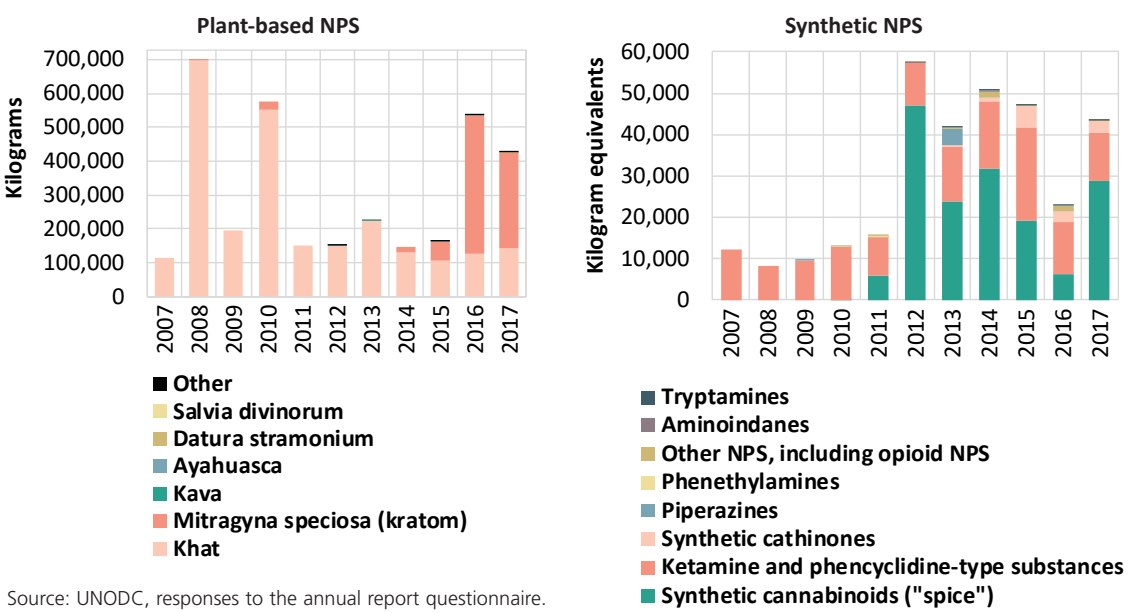
and 2017, while the amount of khat seized globally has remained largely stable in recent years. While khat was seized by 52 countries across all regions over the past decade, interceptions of kratom were reported by six countries, mostly in South-East Asia. This suggests that the khat market has a broader geographical reach than the kratom market, which is mainly concentrated in just one subregion, although smaller seizures of kratom made in South-East Asia also involved shipments intended for final destinations in North America (most notably the United States) and Oceania (notably Australia).[145] In May 2018, the Food and Drug Administration of the United States issued warnings to three distributors for illegally selling unapproved drug products containing kratom in that country.[146] In parallel, smaller quantities of kratom were also seized in Western and Central Europe.

The overall quantities of synthetic NPS seized showed a marked increase at the beginning of the second decade of the new millennium but, irrespective of the reported increase in 2017, have not grown notably since. This may reflect the fact that some of the most harmful NPS have been put under national and international control in recent years and are therefore produced and trafficked less than in the past and no longer form part of any NPS category.

A total of 66 countries across all regions reported seizures of synthetic NPS to UNODC over the period 2007–2017, rising from 15 countries in 2007 to 45 countries in 2017. Most of the quantities of synthetic NPS seized were reported in the Americas (mostly North America), followed by Asia (mostly East and South-East Asia) and Europe (Western and Central Europe and Eastern Europe). Data also indicate the dominance of synthetic cannabinoids within the seizures of synthetic NPS throughout the second decade of the new millennium. These were followed by ketamine and synthetic cathinones over the period 2014–2017. The quantities of piperazines, phenethylamines and tryptamines seized over the last decade have been smaller than of cannabinoids, ketamine and synthetic cathinones.

Following the decision by the Commission on Narcotic Drugs in March 2018 to schedule another six substances under the Single Convention on Narcotic

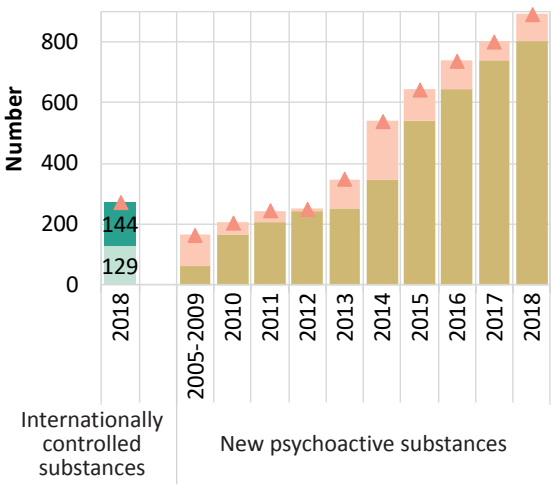
FIG. 26 Global quantities of NPS seized, 2007–2017



Source: UNODC, responses to the annual report questionnaire.

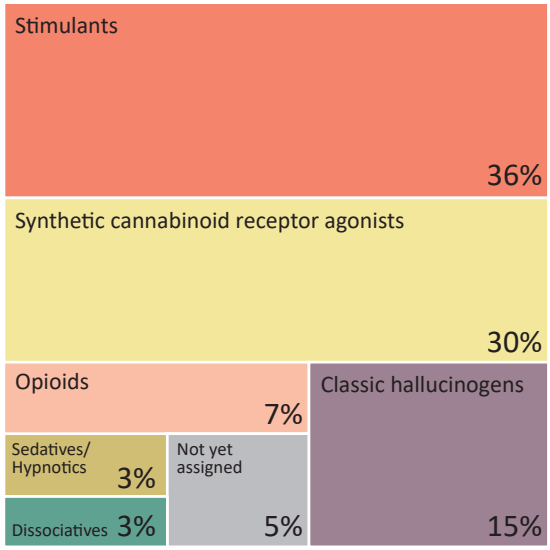
145 E/INCB/2017/1.
146 E/INCB/2018/1.

FIG. 27 Internationally controlled drugs in 2018 and identified new psychoactive substances at the global level, 2005–2018 (cumulative)



Source: UNODC early warning advisory on new psychoactive substances.

FIG. 28 Proportion of identified synthetic new psychoactive substances by effect group, as of December 2018 (N = 868)



Source: UNODC early warning advisory on new psychoactive substances.

Note: The total number of NPS amounted to 892 substances, including 868 synthetic NPS. The analysis of the pharmacological effects comprises NPS registered up to December 2018 (868 substances). Plant-based substances were excluded from the analysis as they usually contain a large number of different substances, some of which may not have been known and whose effects and interactions are not fully understood.

Drugs of 1961 as amended by the 1972 Protocol and a further six substances under the Convention on Psychotropic Substances of 1971, 273 psychoactive substances were under international control at the end of 2018. By comparison, the number of NPS identified by authorities worldwide and reported to the UNODC early warning advisory[147] is already three times higher, having reached a total of 892 substances in December 2018, up from 166 in 2009. It should be noted, however, that not all NPS identified may merit being put under international control, as taking such a step depends on the harm they can cause as well as their persistence on the market: some only emerge for a short period of time and then disappear from the market.

Data show that 36 per cent of the synthetic NPS substances identified over the period 2009–2018 had stimulant effects. Most of them were cathinones and phenethylamines. Thirty per cent of the synthetic NPS were synthetic cannabinoids receptor agonists and 15 per cent could be considered classic hallucinogens (mostly tryptamines).

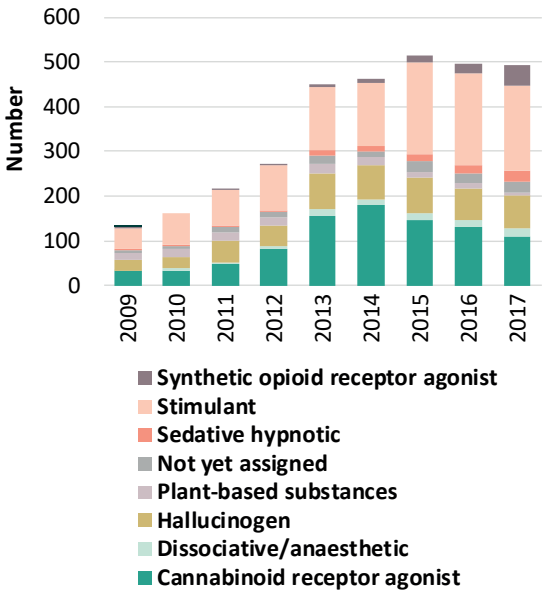
The main concern for the authorities in a number of countries, however, has been the emergence of new synthetic opioid receptor agonists (opioid NPS) in recent years, often fentanyl analogues. They prove to be particularly harmful, leading to growing numbers of NPS-related deaths, in particular in North America and, to a lesser extent, in Europe. Over the period 2009–2018, about 7 per cent of all identified NPS were opioid NPS.

The analysis of NPS identified[148] annually by the forensic laboratories of national authorities and reported to the UNODC early warning advisory suggests a proliferation of individual NPS up until

147 The UNODC early waring advisory on new psychoactive substances comprises data on the type of NPS identified in forensic laboratories by authorities worldwide.

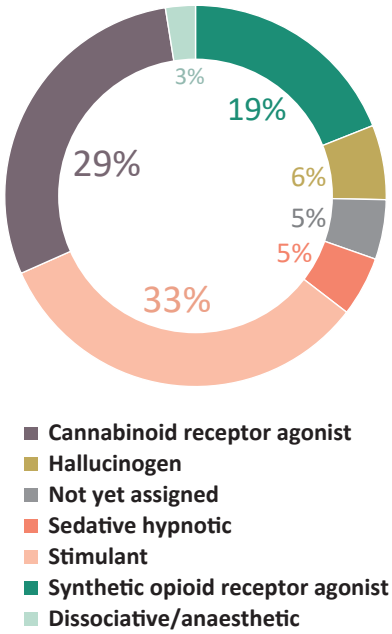
148 Substances emerging for the first time in a country.

FIG. 29 Synthetic new psychoactive substances reported annually to UNODC, 2009–2017, by psychoactive effect group



Source: UNODC early warning advisory on new psychoactive substances.

FIG. 30 Synthetic new psychoactive substances reported for the first time at the global level in 2017 (N = 78)



Source: UNODC early warning advisory on new psychoactive substances.

2015 and a subsequent trend towards a stabilization in the number of new substances arriving on the market, at a rate of about 500 NPS per year (492 in 2017). This needs to be seen in the context of the number of countries reporting to the early warning advisory increasing significantly, and thus of more comprehensive reporting.

While recent years have seen a decrease in the number of new synthetic cannabinoids arriving on the market, the number of NPS with stimulant effects has increased and, in relative terms, the number of newly emerging opioid NPS has risen sharply, from just 1 substance in 2009 to 15 in 2015, 22 in 2016 and 46 in 2017. Those increases are equivalent to an increase of less than 1 per cent of all identified NPS in 2009, 4 per cent in 2016 and 9 per cent in 2017.

Of the 78 NPS that emerged for the first time at the global level in 2017, synthetic opioid receptors agonists accounted for 29 per cent of the total, slightly less than the percentage of NPS with stimulant effects, which accounted for 33 per cent, but more than the percentage of cannabinoids receptor agonists (19 per cent).

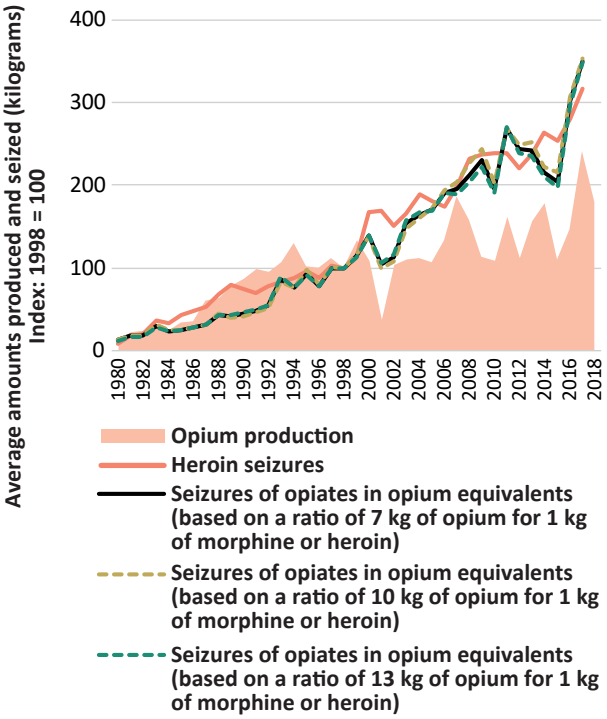
Interceptions of cocaine and opiates have increased

During the period 1998–2017, global opium production doubled, while the overall quantities of heroin and opiates seized (expressed in opium equivalents) more than tripled. The global manufacture of cocaine also doubled over that period, while the quantities of cocaine seized more than tripled. Such trends suggest an increase over time in the global interception of the amounts of both opiates and cocaine produced, although variations in purity may also partially explain the different trends.

Trafficking over the darknet does not yet involve major drug trafficking groups but remains a challenge for the authorities

Research to date has shown that most drug transactions on the darknet tend to amount to no more than $100, with few transactions exceeding

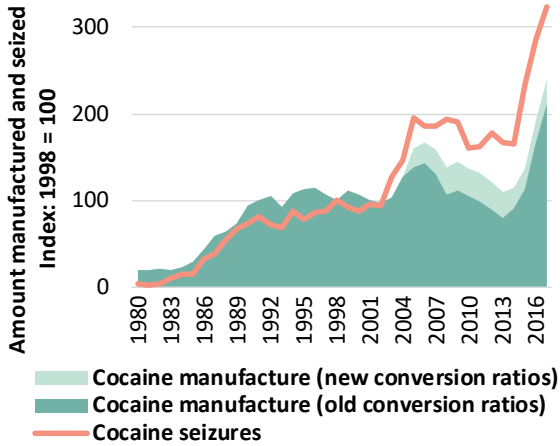
FIG. 31 Global opium production and global quantities of opium, morphine, heroin and opiates seized (in opium equivalents), 1980–2018



Sources: UNODC, annual report questionnaire for seizures and UNODC opium production estimates based on UNODC, opium poppy surveys, UNODC, annual report questionnaire and United States, Department of State, *International Narcotics Control Strategy Reports.*

Note: In general, a ratio of 10 kg of opium for 1 kg of morphine or heroin is used in the literature. However, UNODC analysis for Afghanistan, the world's largest opium-producing country, revealed a ratio of 7:1 in the second half of the 2000s, while new research has suggested a ratio of roughly 13:1 in recent years.

FIG. 32 Global cocaine manufacture and global quantities of cocaine seized, 1980–2018



Sources: UNODC, annual report questionnaire for seizures and UNODC cocaine manufacture estimates based on UNODC, coca cultivation surveys and United States, Department of State, *International Narcotics Control Strategy Reports.*

$1,000.[149] Europol also reports that darknet markets are still of limited importance to "top-tier" cybercriminals and organized criminal groups involved in large-scale drug trafficking activities, which may be because such groups use well-established logistics networks. In parallel, the frequent demise of darknet trading platforms in recent years, including the large number of exit scams,[150] may have reduced the attractiveness of darknet trafficking for some groups. In addition, unlike in operations in the "real world", the drug trafficking groups operating over the darknet are not in a position to effectively enforce drug deals by threatening their counterparts with violence.

Europol also reports that falsified pharmaceuticals are still mainly traded online over the surface web so as to reach a broader customer base than that reachable on the darknet.[151]

Law enforcement operations against major darknet markets seem to have had an impact

A number of national and international law enforcement operations aimed at taking down major darknet market platforms have been conducted in the past few years. Such operations have led to the closure of the first major darknet platform, Silk Road, in 2013; the international operation Onymous resulted in the closure of 33 darknet markets, including 9 major platforms such as Silk Road 2.0, Cloud 9 and Hydra, in November 2014; and the international operations Bayonet and GaveSac,

149 Kristy Kruithof and others, *Internet-facilitated Drugs Trade: An Analysis of the Size, Scope and the Role of the Netherlands*, Research Report Series, document No. RR-1607-WODC (Santa Monica, California, Rand Corporation, 2016), e-book.

150 EMCDDA and Europol, *Drugs and the Darknet: Perspectives for Enforcement, Research and Policy*, Joint publications series (Luxembourg, Publications Office of the European Union, 2017).

151 Europol, European Cybercrime Centre, *Internet Organised Crime Threat Assessment (IOCTA) 2018* (The Hague, 2018).

Darknet drug transactions: business model

The main characteristic and comparative advantage of darknet markets is their anonymity. Customers intending to buy drugs over the darknet typically access it through the onion router (TOR) in order to ensure that their identities remain concealed. Specialized darknet explorers, such as Grams, enable them to access their desired market platform, where goods are then typically paid for in cryptocurrencies, in particular bitcoins, which can be subsequently used to buy other goods and services, or exchanged for various national currencies. The delivery of drugs purchased on the darknet is generally carried out by public and private postal services without their knowledge, with parcels often being sent to anonymous post office boxes, including automated booths, or "packstations", for self-service collection. In jurisdictions with strong secrecy-of-correspondence laws, drugs are often dispatched in letters.

The main advantage of the darknet for both suppliers and customers is the anonymity of the transaction. It does not require physical contact and thus reduces the reticence of some customers to interact with drug dealers and removes the need for the customer to go to dangerous places to buy drugs. As darknet trafficking overcomes the need for sellers and buyers to be in the same location, organizations that traffic drugs over the darknet do not need the critical mass of customers necessary to sustain a localized market.

Darknet platforms bring anonymous suppliers and anonymous customers together. Drug purchasers also benefit from other customers' feedback about the quality of the drugs sold, which helps them evaluate the reliability of the supplier. Darknet platforms may also guarantee the payment of goods sold, typically by making use of escrow account systems, into which the customer must pay for the required goods into an escrow account but the finalization of the remuneration to the supplier is postponed until the goods have been received by the customer.

resulted in the shutdown of the then three largest darknet markets, AlphaBay, the Russian Anonymous Market place (RAMP) and Hansa in July 2017, which were estimated to have accounted at the time for 87 per cent of all darknet market activity.[152]

A further takedown of a major darknet market took place in late April 2019 when, following extensive undercover operations that lasted more than a year by law enforcement agencies in Germany, the Netherlands and the United States, in close cooperation with Europol, the Wall Street Market was dismantled and its main operators were arrested as they started to set a large exit scam in motion. Established in 2016, the Wall Street Market was considered the world's second-largest darknet market before its closure, and had some of the best security features at the time, such as a bitcoin multi-signature escrow system and a direct deposit escrow system, and an in-depth award and rating system for use by its customers. The market had more than 5,400 vendors, listing more than 63,000 illegal goods, including drugs, for sale and, reportedly, had more than 1.1 million customer accounts.[153]

Shortly before the takedown of Wall Street Market, another darknet market, Dream Market, founded in late 2013, which was considered the world's largest darknet market place following the takedown of AlphaBay in July 2017, announced that it would shut down on 30 April 2019. The reasons for the voluntary shutdown are, at the time of writing, not fully understood. One theory is that they might have been related to a number of cyberattacks on the market by competitors.

It has been argued that the takedown of major trading platforms in the past did not have long-lasting effects. Despite some short-term disruptions, customers and suppliers simply shifted to the next-largest trading platforms and overall drug sales

152 *Internet Organised Crime Threat Assessment (IOCTA) 2018.*

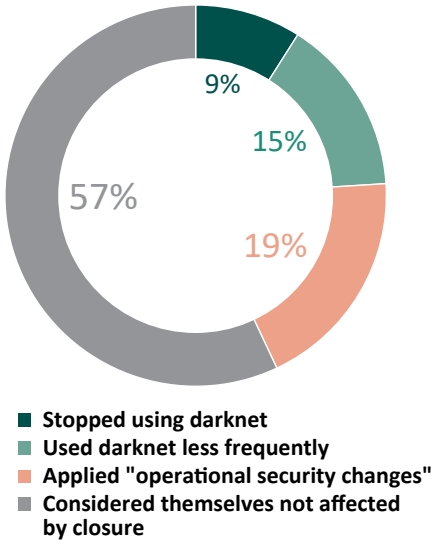
153 Germany, Federal Criminal Police Office (BKA), "Festnahme der mutmaßlichen Verantwortlichen des weltweit zweitgrößten illegalen Online-Markplatzes im Darknet „Wall Street Market" und Sicherstellung der Server des Marktplatzes", press release of 3 May 2019.

over the darknet continued increasing at a rapid pace.[154] However, results from the Global Drug Survey 2018, on the subject of the consequences of the 2017 shutdown of AlphaBay and Hansa, suggest that 15 per cent of users used darknet markets less frequently after the shutdown and 9 per cent stopped using the darknet for drug purchases.

After putting AlphaBay temporarily offline, the authorities allowed customers and vendors to move from AlphaBay to the Hansa platform which, at the time, was already run covertly by the Dutch National Police (assisted by authorities in Germany, Lithuania and other countries). This enabled the Dutch authorities to collect valuable information on high-value targets and delivery addresses that were subsequently shared with relevant law enforcement authorities worldwide, resulting in an effective decline in online drug transactions over the darknet. While some of the remaining vendors and customers migrated to the next-largest darknet drug market, Dream Market, the largest English-speaking platform (with listings rising by 20 per cent within three months), as well as to a number of smaller markets (with listings on smaller marketplaces rising three- to eightfold within three months), those remaining darknet markets as a group did not match the scale of AlphaBay, according to Europol.[155]

Several Europol member States have suggested that other consequences of those site closures include a growth in the number of single vendor shops, i.e., hidden service platforms set up by well-established vendors who are trusted and have a good reputation, allowing them to continue to do business with the clientele from the now-defunct markets. In addition, a growth in secondary, non-English darknet markets has been observed. Those markets cater, in general, to particular nationalities or language groups. [156] The delivery of drugs in letters, which may be screened when they cross borders but not within the country in which they were posted, may have also contributed to this phenomenon in countries with strict secrecy-of-correspondence laws. In parallel, some sophisticated open web marketplaces have also emerged, which are characterized by a high level of anonymity among all market participants and rapid replacements of arrested participants. Those marketplaces operate through the use of encrypted messages; existing postal services are used not only for drug deliveries but also for money transfers.

FIG. 33 Consequences of shutdown of AlphaBay and Hansa darknet markets, January 2018



Source: UNODC calculations based on Global Drug Survey 2018 data: detailed findings on drug cryptomarkets. Available from Dr. Monica Barratt, Drug Policy Modelling Program, National Drug and Alcohol Research Centre, Australia.

New research largely confirms existing knowledge of patterns of use of the darknet for drug purchases

Although research on darknet trafficking and purchases over the darknet is still limited and results are generally based on a few empirical studies, it is interesting to note that local studies tend to confirm existing results.

One study in 2017,[157] based on online interviews of drug users and the analysis of discussions in drug forums, involving 2,833 participants, mainly from Germany, revealed that drug users who purchase

154 See *Drugs and the Darknet.*

155 *Internet Organised Crime Threat Assessment (IOCTA) 2018.*

156 Ibid.

157 See Gerrit Kamphausen "Drogen online kaufen: quantitative and qualitative Daten aus einem deutsch-österreichischen Forschungsprojekt zu Drogen und organisierter Kriminalität", presented at Impuls 2018, Symposium for Innovative Drug Research, 19–21 September 2018.

Summary of previous research on drug trafficking over the darknet

Research conducted jointly by EMCDDA and Europol found that, as of August 2017, more than 60 per cent of all listings on the then five main darknet markets worldwide were related to the illicit selling of drugs, including drug-related chemicals and pharmaceuticals. Illicit sales of drugs alone accounted for almost half of all such listings. A 2018 update by Europol re-confirmed that the online trade in drugs continued to epitomize illicit trade on the darknet, accounting for the majority, if not the totality, of the listings on many darknet marketplaces.

Moreover, research has indicated substantial growth in drug sales over the darknet in recent years. Such transactions were found to have risen by around 50 per cent per year over the period October 2013 to January 2016. By comparison, the amounts of drugs reported seized globally increased by less than 4 per cent per year over the period 2013–2016.

However, analyses of the estimated value of transactions made over the darknet suggest that only modest drug sales have been made over the darknet to date. Joint Europol and EMCDDA research arrived at a figure of 172 million euros worldwide over the period 2011–2015, the equivalent of $44 million per year. Another study estimated monthly drug-related revenue of the then eight largest darknet markets to have amounted to $14–$25 million in early 2016; the equivalent of $170–$300 million per year, which amounts to 0.1–0.2 per cent of overall drug retail sales in the United States of America and the European Union combined. This structure does not appear to have changed in subsequent years. Indeed, Europol reported in 2018 that the proportion of drugs traded illicitly online remained small compared with the proportion traded through traditional distribution and trafficking networks.

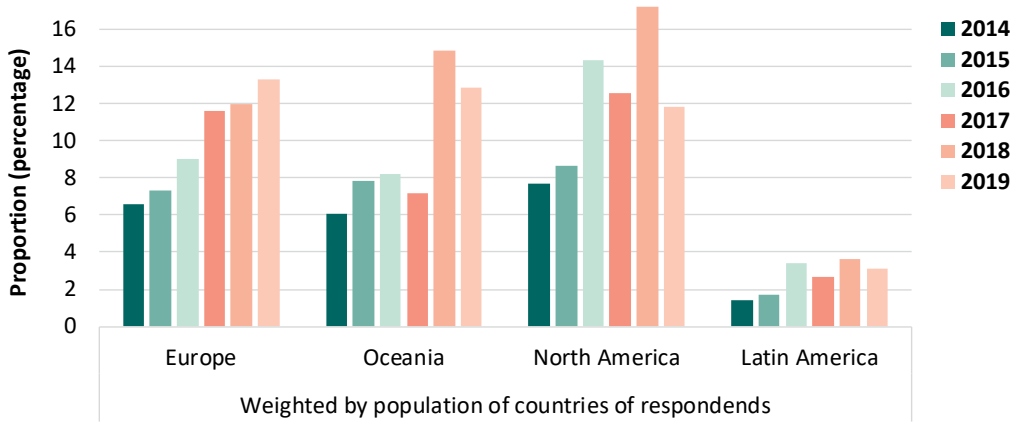
drugs over the darknet are quite young (median age: 24; range: 14–66), have a relatively high level of education and are socially well integrated. About 20 per cent of the drug users interviewed had some experience of online drug purchases, with a higher proportion among men (21 per cent) than among women (14 per cent). In Germany, the proportion of online purchases was highest for LSD (14 per cent), followed by cannabis and "ecstasy" (12 per cent each) and "speed" (amphetamine (9 per cent)). The study also suggested that purchases over the darknet are not yet frequent: almost 70 per cent of those who use the darknet for online purchases reported making just 1 to 5 drug purchases over the darknet, while only 11 per cent (in the case of cannabis) and about 5 per cent (in the case of "ecstasy", amphetamine and LSD) reported having made more than 20 purchases.

The main reasons for making drug purchases online were "greater choice" (55 per cent), "better quality" (54 per cent) and "lower price" (42 per cent). For 93 per cent of people purchasing drugs over the darknet, the rating given by others was very important in their decision to purchase drugs from certain vendors. To reduce the risk of detection, most used the onion router (74 per cent), bitcoin (66 per cent) and encrypted communication systems (48 per cent). By contrast, more sophisticated methods, such as multi-signature processes, encrypted log-in systems and bitcoin mixers were apparently not used frequently, at least not prior to 2017. Users also reported that their subjective level of security increased when using the darknet for drug purchases, in particular with regard to violence in drug markets (84 per cent), product quality and health risk (with 71 per cent perceiving that they obtained better-quality drugs), and the risk of apprehension by the police (with 38 per cent feeling more secure and 18 per cent less secure).

Purchases of drugs on the darknet are increasing in the long term, although they may have declined from 2018 to 2019

The Global Drug Survey, based on a non-representative convenience sample of about 100,000 self-selected persons per year from over 50 primarily developed countries, shows that the proportion of

FIG. 34 Proportion of surveyed Internet users using drugs (in the past year) who purchased drugs over the darknet, 2014–2019, selected regions and subregions



Source: UNODC calculations, based on Global Drug Survey 2019 data: detailed findings on drug cryptomarkets. Available from Dr. Monica Barratt, Drug Policy Modelling Program, National Drug and Alcohol Research Centre, Australia.

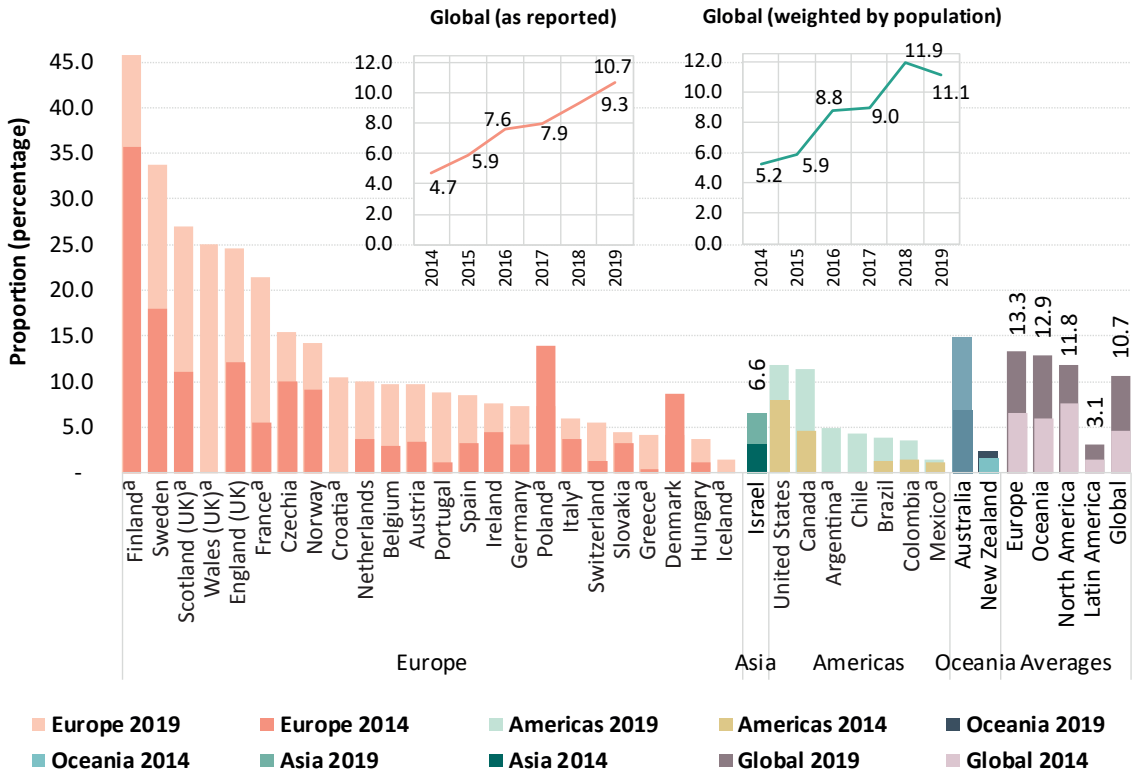
Note: For Europe, the average is based on information from respondents in 22 countries; in Oceania, the average is based on information from respondents in Australia and New Zealand; in North America, the average is based on information from respondents in Canada and the United States; and in Latin America, the average is based on information from respondents in Brazil, Chile, Colombia and Mexico.

Internet users using drugs who purchased drugs over the darknet doubled from 4.7 per cent in January 2014 to 10.7 per cent in January 2019, with increases found in all the subregions covered by the survey. Disaggregated data suggest, however, that the proportion of Internet users purchasing drugs over the darknet decreased between January 2018 and January 2019 in all subregions other than those in Europe. This may have been a consequence of the takedown of major darknet drug markets in July 2017. Once data are weighted by the size of each country, they also point to a decrease at the global level from 2018 to 2019.[158]

Data from the Global Drug Survey 2019 also suggest that the purchase of drugs over the darknet is still a very recent phenomenon, with nearly half (48 per cent) of people who reported purchasing drugs over the darknet in 2019 having started to use the darknet for such purposes in the previous two years and a further 29 per cent in the two preceding years.

158 UNODC calculations based on Global Drug Survey 2019 data. Available from Dr. Monica Barratt, Drug Policy Modelling Program, National Drug and Alcohol Research Centre, Australia.

FIG. 35 Proportion of surveyed Internet users using drugs (in the past year) who purchased drugs over the darknet, selected countries, 2014 and 2019



Source: UNODC calculations based on Global Drug Survey 2019 data: *detailed findings on drug cryptomarkets*. Available from Dr. Monica Barratt, Drug Policy Modelling Program, National Drug and Alcohol Research Centre, Australia.

Note: For Europe, the average is based on information from respondents in 22 countries; in Oceania, the average is based on information from respondents in Australia and New Zealand; in North America, the average is based on information from respondents in Canada and the United States; and in Latin America, the average based on information from respondents in Brazil, Chile, Colombia and Mexico.

[a] *Data from either 2019 or 2014 were not available and data from the nearest year were used as proxy.*

TABLE 2 Annual prevalence of the use of cannabis, opioids and opiates, by region and globally, 2017

Region or subregion	Cannabis						Opioids (opiates and pharmaceutical opioids)						Opiates					
	Number (thousands)			Prevalence (percentage)			Number (thousands)			Prevalence (percentage)			Number (thousands)			Prevalence (percentage)		
	Best estimate	Lower	Upper	Best estimate	Lower	Upper	Best estimate	Lower	Upper	Best estimate	Lower	Upper	Best estimate	Lower	Upper	Best estimate	Lower	Upper
Africa	**44,900**	**35,350**	**62,690**	**6.4**	**5.1**	**9.0**	**6,080**	**5,000**	**7,390**	**0.87**	**0.71**	**1.06**	**1,470**	**530**	**2,800**	**0.21**	**0.08**	**0.40**
East Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Africa	-	-	-	-	-	-	360	120	660	0.25	0.08	0.46	360	120	660	0.25	0.08	0.46
Southern Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
West and Central Africa	26,760	25,700	29,420	10.0	9.6	11.0	-	-	-	-	-	-	-	-	-	-	-	-
Americas	**56,590**	**55,600**	**58,330**	**8.4**	**8.3**	**8.7**	**13,600**	**11,980**	**16,320**	**2.03**	**1.79**	**2.43**	**2,690**	**1,970**	**3,480**	**0.40**	**0.29**	**0.52**
Caribbean	1,040	580	2,090	3.6	2.0	7.2	-	-	-	-	-	-	-	-	-	-	-	-
Central America	880	820	990	2.9	2.7	3.3	-	-	-	-	-	-	-	-	-	-	-	-
North America	44,630	44,460	44,810	13.8	13.7	13.8	12,830	11,640	13,720	3.96	3.60	4.24	2,400	1,790	2,970	0.74	0.55	0.92
South America	10,040	9,740	10,440	3.5	3.4	3.6	580	250	2,180	0.20	0.09	0.76	240	150	330	0.08	0.05	0.12
Asia	**54,210**	**41,140**	**64,840**	**1.8**	**1.4**	**2.2**	**29,460**	**26,280**	**31,910**	**0.98**	**0.88**	**1.06**	**21,730**	**18,970**	**24,570**	**0.72**	**0.63**	**0.82**
Central Asia and Transcaucasia	1,670	640	2,410	2.9	1.1	4.2	540	480	600	0.93	0.83	1.03	520	470	580	0.90	0.80	1.00
East and South-East Asia	13,570	4,160	21,740	0.8	0.3	1.4	3,280	2,330	4,010	0.20	0.15	0.25	3,280	2,330	4,010	0.20	0.14	0.25
South-West Asia/ Near and Middle East	9,500	6,890	11,180	3.1	2.3	3.7	6,950	4,910	8,550	2.28	1.61	2.81	4,930	3,300	6,910	1.62	1.08	2.27
South Asia	29,470	29,430	29,520	2.9	2.9	2.9	18,680	-	-	1.81	-	-	12,990	-	-	1.26	-	-
Europe	**29,490**	**28,810**	**30,210**	**5.4**	**5.3**	**5.6**	**3,570**	**3,330**	**3,830**	**0.66**	**0.61**	**0.70**	**3,220**	**3,010**	**3,600**	**0.59**	**0.55**	**0.66**
Eastern and South-Eastern Europe	5,880	5,530	6,220	2.6	2.5	2.8	1,730	1,660	1,810	0.77	0.74	0.80	1,490	1,410	1,570	0.66	0.63	0.70
Western and Central Europe	23,610	23,270	23,990	7.4	7.3	7.5	1,840	1,670	2,020	0.58	0.52	0.63	1,740	1,590	2,030	0.54	0.50	0.64
Oceania	**2,840**	**2,790**	**2,950**	**10.9**	**10.7**	**11.3**	**650**	**570**	**730**	**2.48**	**2.18**	**2.79**	**40**	**40**	**70**	**0.16**	**0.14**	**0.28**
Australia and New Zealand	2,090	2,090	2,090	11.0	11.0	11.0	630	570	680	3.28	2.98	3.58	35	35	41	0.18	0.18	0.22
Melanesia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Micronesia	60	40	80	17.2	11.3	23.1	-	-	-	-	-	-	-	-	-	-	-	-
Polynesia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GLOBAL ESTIMATE	**188,040**	**163,680**	**219,020**	**3.8**	**3.3**	**4.4**	**53,350**	**47,160**	**60,180**	**1.08**	**0.96**	**1.22**	**29,160**	**24,510**	**34,520**	**0.59**	**0.50**	**0.70**

Source: UNODC estimates based on annual report questionnaire data and other official sources.

TABLE 3 Annual prevalence of the use of cocaine,[a] amphetamines[b] and "ecstasy", by region and globally, 2017

Region or subregion	Cocaine[a]						Amphetamines[b] and pharmaceutical stimulants						"Ecstasy"					
	Number (thousands)			Prevalence (percentage)			Number (thousands)			Prevalence (percentage)			Number (thousands)			Prevalence (percentage)		
	Best estimate	Lower	Upper	Best estimate	Lower	Upper	Best estimate	Lower	Upper	Best estimate	Lower	Upper	Best estimate	Lower	Upper	Best estimate	Lower	Upper
Africa	**1,300**	**160**	**2,570**	**0.19**	**0.02**	**0.37**	**3,680**	**900**	**6,600**	**0.53**	**0.13**	**0.94**	**1,800**	**100**	**7,880**	**0.26**	**0.01**	**1.13**
East Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Africa	-	-	-	-	-	-	500	340	610	0.34	0.23	0.42	-	-	-	-	-	-
Southern Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
West and Central Africa	250	1	633	0.09	0.00	0.24	-	-	-	-	-	-	-	-	-	-	-	-
Americas	**9,930**	**9,200**	**10,590**	**1.48**	**1.37**	**1.58**	**7,860**	**6,660**	**9,230**	**1.17**	**0.99**	**1.38**	**3,500**	**3,390**	**3,630**	**0.52**	**0.51**	**0.54**
Caribbean	180	80	330	0.62	0.29	1.15	250	20	700	0.87	0.05	2.42	60	30	100	0.23	0.10	0.36
Central America	200	100	310	0.66	0.34	1.02	60	30	100	0.21	0.09	0.31	50	20	100	0.17	0.07	0.33
North America	6,800	6,660	6,950	2.10	2.06	2.15	6,840	5,990	7,690	2.11	1.85	2.38	2,870	2,870	2,870	0.89	0.89	0.89
South America	2,740	2,360	3,000	0.95	0.82	1.04	710	630	740	0.25	0.22	0.26	510	470	550	0.18	0.16	0.19
Asia	**1,670**	**1,140**	**2,220**	**0.06**	**0.04**	**0.07**	**14,140**	**4,980**	**23,290**	**0.47**	**0.17**	**0.78**	**11,490**	**1,600**	**21,380**	**0.38**	**0.05**	**0.71**
Central Asia and Transcaucasia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
East and South-East Asia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South-West Asia/Near and Middle East	70	30	130	0.02	0.01	0.04	-	-	-	-	-	-	-	-	-	-	-	-
South Asia	1,030	1,030	1,030	0.10	0.10	0.10	1,850	1,850	1,850	0.18	0.18	0.18	-	-	-	-	-	-
Europe	**4,740**	**4,460**	**5,140**	**0.87**	**0.82**	**0.95**	**2,900**	**2,350**	**3,480**	**0.53**	**0.43**	**0.64**	**4,060**	**2,930**	**6,970**	**0.54**	**0.39**	**0.93**
Eastern and South-Eastern Europe	500	340	720	0.22	0.15	0.32	710	410	1,040	0.32	0.18	0.46	1,310	250	4,040	0.31	0.06	0.95
Western and Central Europe	4,240	4,120	4,420	1.33	1.29	1.39	2,180	1,940	2,440	0.68	0.61	0.76	2,750	2,680	2,930	0.86	0.84	0.92
Oceania	**430**	**410**	**440**	**1.65**	**1.57**	**1.67**	**350**	**320**	**360**	**1.34**	**1.24**	**1.38**	**440**	**410**	**450**	**1.68**	**1.56**	**1.72**
Australia and New Zealand	420	410	420	2.20	2.15	2.23	250	250	250	1.34	1.34	1.34	410	400	430	2.17	2.12	2.23
Melanesia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Micronesia	-	-	-	-	-	-	5	2	11	1.58	0.56	3.10	-	-	-	-	-	-
Polynesia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GLOBAL ESTIMATE	**18,070**	**15,380**	**20,960**	**0.37**	**0.31**	**0.42**	**28,920**	**15,210**	**42,960**	**0.59**	**0.31**	**0.87**	**21,290**	**8,420**	**40,310**	**0.41**	**0.16**	**0.78**

Source: UNODC estimates based on annual report questionnaire data and other official sources.

[a] *Cocaine includes cocaine salt, "crack" cocaine and other types such as coca paste, cocaine base, "basuco", "paco" and "merla".*
[b] *Amphetamines include both amphetamine and methamphetamine.*

TABLE 4 Estimated number and prevalence (percentage) of people who inject drugs and those living with HIV among this group, by region, 2017

Region or subregion	People who inject drugs							HIV among people who inject drugs				
	Estimated number			Prevalence (%)			Data coverage of population aged 15-64 years	Estimated number			Prevalence (%) Best estimate	Data coverage of estimated number of people who inject drugs
	Low	Best	High	Low	Best	High		Low	Best	High		
Africa	**450,000**	**810,000**	**2,140,000**	**0.06**	**0.12**	**0.31**	**57.8%**	**42,000**	**93,000**	**515,000**	**11.4**	**75.4%**
America	**1,860,000**	**2,370,000**	**2,870,000**	**0.28**	**0.35**	**0.43**	**86.1%**	**109,000**	**174,000**	**259,000**	**7.3**	**93.9%**
North America	1,560,000	1,790,000	2,020,000	0.48	0.55	0.62	100%	94,000	124,000	159,000	6.9	100%
Latin America and the Caribbean	300,000	580,000	850,000	0.09	0.17	0.25	73.2%	16,000	50,000	100,000	8.5	75.2%
Asia	**4,130,000**	**5,430,000**	**6,900,000**	**0.14**	**0.18**	**0.23**	**95.0%**	**449,000**	**667,000**	**925,000**	**12.3**	**98.0%**
Central Asia and Transcaucasia	400,000	450,000	530,000	0.69	0.78	0.91	93.6%	28,000	34,000	44,000	7.5	93.6%
East and South-East Asia	2,210,000	3,210,000	4,200,000	0.14	0.20	0.26	95.1%	181,000	320,000	482,000	10.0	98.7%
South-West Asia	570,000	750,000	950,000	0.29	0.38	0.48	100%	154,000	216,000	284,000	28.9	100%
Near and Middle East	40,000	90,000	270,000	0.03	0.08	0.25	39.0%	1,800	3,200	10,400	3.8	55.6%
South Asia	910,000	930,000	950,000	0.09	0.09	0.09	99.9%	84,000	93,000	105,000	10.0	99.9%
Europe	**2,350,000**	**2,570,000**	**2,990,000**	**0.44**	**0.48**	**0.55**	**90.0%**	**483,000**	**505,000**	**556,000**	**19.6**	**99.9%**
Eastern and South-Eastern Europe	1,760,000	1,800,000	1,860,000	0.80	0.82	0.84	100%	416,000	423,000	431,000	23.5	100%
Western and Central Europe	590,000	770,000	1,130,000	0.19	0.24	0.35	83.0%	67,000	82,000	126,000	10.6	99.9%
Oceania	**130,000**	**130,000**	**140,000**	**0.51**	**0.52**	**0.54**	**73.0%**	**1,300**	**1,600**	**1,700**	**1.2**	**73.0%**
Global	**8,930,000**	**11,320,000**	**15,030,000**	**0.18**	**0.23**	**0.30**	**87.9%**	**1,090,000**	**1,440,000**	**2,260,000**	**12.7**	**95.7%**

Source: Responses to the annual report questionnaire; progress reports of the Joint United Nations Programme on HIV/AIDS (UNAIDS) on the global AIDS response (various years); the former Reference Group to the United Nations on HIV and Injecting Drug Use; published peer-reviewed articles; and government reports.

Note: Prevalence of people who inject drugs is the percentage of the population aged 15–64 years.

TABLE 5 Illicit cultivation of opium poppy, 2007–2018 (hectares)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
SOUTH-WEST ASIA												
Afghanistan (best estimate)	193,000	157,000	123,000	123,000	131,000	154,000	209,000	224,000	183,000	201,000	328,000	263,000
lower bound [a]			102,000	104,000	109,000	125,000	173,000	196,000	163,000	182,000	301,000	242,000
upper bound [a]			137,000	145,000	155,000	189,000	238,000	247,000	202,000	221,000	355,000	283,000
SOUTH-EAST ASIA												
Lao People's Democratic Republic (best estimate) [b]	1,500	1,600	1,900	3,000	4,100	6,800	3,900	6,200	5,700	..	..	..
lower bound [a]	1,230	710	1,100	1,900	2,500	3,100	1,900	3,500	3,900			
upper bound [a]	1,860	2,700	2,700	4,000	6,000	11,500	5,800	9,000	7,600			
Myanmar (best estimate) [b]	27,700	28,500	31,700	38,100	43,600	51,000	57,800	57,600[c]	55,500[c]	..	41,000	37,300[c]
lower bound [a]	22,500	17,900	20,500	17,300	29,700	38,249	45,710	41,400	42,800		30,200	29,700
upper bound [a]	32,600	37,000	42,800	58,100	59,600	64,357	69,918	87,300	69,600		51,900	47,200
SOUTH AND CENTRAL AMERICA												
Colombia (best estimate)	715	394	356	341	338	313	298	387	595	462	282	..
Mexico (best estimate) [b, d, f, h]	6,900	15,000	19,500	14,000	12,000	10,500	11,000	17,000	26,100	25,200	30,600	..
lower bound [a]									21,800	20,400	22,800	
upper bound [a]									30,400	30,000	38,400	

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
OTHER												
Other countries [e]	**5,885**	**10,509**	**9,479**	**12,221**	**16,462**	**12,282**	**13,293**	**11,522**	**10,597**	**68,139**	**14,589**	***45,471***
TOTAL (best estimate)	235,700	213,003	185,935	190,662	207,500	234,895	295,291	316,709	281,492	294,801	414,471	*345,771*
lower bound			**152,935**	**149,762**	**170,000**	**189,444**	**245,201**	**269,809**	**242,692**	**256,501**	**367,251**	***307,751[g]***
upper bound			**211,835**	**233,662**	**249,400**	**287,952**	**338,309**	**372,209**	**320,792**	**335,601**	**462,251**	***385,551[g]***
TOTAL (best estimate, rounded)	**235,700**	**213,000**	**185,900**	**190,700**	**207,500**	**234,900**	**295,300**	**316,700**	**281,500**	**294,800**	**414,500**	***345,800[g]***

Sources: Afghanistan, Lao People's Democratic Republic and Myanmar: national illicit crop monitoring system supported by the United Nations Office on Drugs and Crime (UNODC). Colombia: Government of Colombia. Mexico: up to 2014, estimates derived from surveys by the Government of the United States of America (international narcotics control strategy reports); for 2015 and onwards, joint Mexico/UNODC project entitled "Monitoring of the illicit cultivation on Mexican territory".

Note: Figures in italics are preliminary and may be revised when updated information becomes available. Two dots indicate that data were unavailable. Information on estimation methodologies and definitions can be found in the online methodology section of the World Drug Report 2019.

[a] *Bound of the statistically derived confidence interval.*
[b] *May include areas that were eradicated after the date of the area survey.*
[c] *Estimates for 2014, 2015 and 2018 included satellite image estimates for Kayah and Chin states. National estimates for these years are therefore not directly comparable with the other years.*
[d] *Up to 2014, the estimates for Mexico are sourced from the Department of State of the United States. The Government of Mexico does not validate the estimates provided by the United States as they are not part of its official figures and it does not have information on the methodology used to calculate them.*
[e] *Includes countries with low levels of cultivation (with less than 400 hectares in at least two of the last three years) and countries with indirect evidence of illicit cultivation (eradication of opium poppy) but no direct measurement. See table "Cultivation of opium poppy and production of opium in other countries, and eradication of opium poppy, 2008–2018".*
In addition, for 2016, 2017 and 2018, best estimates for countries for which data are not available (Lao People's Democratic Republic, Myanmar for 2016 and Mexico and Colombia for 2018) are included in this category.
Starting in 2008, a new methodology was introduced to estimate opium poppy cultivation and opium/heroin production in countries with no data on illicit cultivation of opium poppy. A detailed description of the estimation methodology is available in the online methodology section of the World Drug Report 2019.
[f] *The figures for 2015, as published in the World Drug Report 2016 (United Nations publication, Sales No. E.16.XI.7), have been revised owing to a statistical adjustment processed by UNODC. These figures are based on the estimation period July 2014–June 2015.*
[g] *Preliminary estimates for 2018; they may change as more country estimates will become available.*
[h] *The figures for 2016 and 2017 are based on the estimation periods July 2015–June 2016 and June 2016–July 2017 respectively.*

TABLE 6 Potential production of oven–dry opium, 2007–2018 (tons)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
SOUTH-WEST ASIA												
Afghanistan (best estimate)	7,400	5,900	4,000	3,600	5,800	3,700	5,500	6,400	3,300	4,800	9,000	6,400
lower bound [a]				3,000	4,800	2,800	4,500	5,100	2,700	4,000	8,000	5,600
upper bound [a]				4,200	6,800	4,200	6,500	7,800	3,900	5,600	10,000	7,200
SOUTH-EAST ASIA												
Lao People's Democratic Republic (best estimate) [b, f]	9	10	11	18	25	41	23	92	..	..	..	..
lower bound [g]	7	4	7	11	15	18	11	51	84			
upper bound [g]	11	16	16	24	36	69	35	133	176			
Myanmar (best estimate) [b]	460	410	330	580	610	690	870	670[h]	647	..	550	520
lower bound			213	350	420	520	630	481	500		395	410
upper bound			445	820	830	870	1,100	916	820		706	664
LATIN AMERICA												
Colombia (best estimate)	14	10	9	8	8	8	11	12	17	13	7	..
Mexico (best estimate) [c, e]	150	325	425	300	250	220	225	360	*499*	*482*	*586*	..
lower bound									*279*	*261*	*292*	
upper bound									*693*	*684*	*876*	
OTHER												
Other countries (best estimate) [d]	58	187	178	224	290	172	182	198	178	888	272	*870*

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
TOTAL (best estimate)	8,091	6,841	4,953	4,730	6,983	4,831	6,810	7,732	4,771	6,184	10,415	*7,790*
lower bound				**3,894**	**5,783**	**3,738**	**5,558**	**6,202**	**3,758**	**4,973**	**8,920**	***6,540***
upper bound				**5,576**	**8,214**	**5,539**	**8,052**	**9,419**	**5,784**	**7,391**	**11,907**	***9,070***
TOTAL best estimate (rounded)	**8,090**	**6,840**	**4,950**	**4,730**	**6,980**	**4,830**	**6,810**	**7,730**	**4,770**	**6,180**	**10,410**	***7,790***

Sources: Afghanistan, Lao People's Democratic Republic and Myanmar: national illicit crop monitoring system supported by the United Nations Office on Drugs and Crime (UNODC). Colombia: National illicit crop monitoring system supported by UNODC. Since 2008, production was calculated based on updated regional yield figures and conversion ratios from the Department of State and the Drug Enforcement Administration of the United States of America. Mexico: up to 2014, estimates derived from surveys by the United States Government; for 2015 and onwards, UNODC estimate.

Note: Figures in italics are preliminary and may be revised when updated information becomes available. Two dots indicate that data were unavailable. Information on estimation methodologies and definitions can be found in the online methodology section of the World Drug Report 2019.

[a] *Bound of the statistically derived confidence interval.*

[b] *Based on cultivation figures which may include areas eradicated after the date of the area survey.*

[c] *Up to 2014, the estimates are sourced from the Department of State of the United States. The Government of Mexico does not validate the estimates provided by the United States as they are not part of its official figures and it does not have information on the methodology used to calculate them.*

[d] *Includes countries with low levels of cultivation and countries with indirect evidence of illicit cultivation (eradication of opium poppy) but no direct measurement.* See table "Cultivation of opium poppy and production of opium in other countries, and eradication of opium poppy, 2008–2018".

In addition, for 2016, 2017 and 2018, best estimates for countries for which data are not available (Lao People's Democratic Republic, Myanmar for 2016 and Mexico and Colombia for 2018) are included in this category.

Starting in 2008, a new methodology was introduced to estimate opium poppy cultivation and opium/heroin production in countries with no data on illicit cultivation of opium poppy. These estimates are higher than the previous figures but have a similar order of magnitude. A detailed description of the estimation methodology is available in the online methodology section of the World Drug Report 2019.

[e] *The figures for 2015, as published in the World Drug Report 2016 (United Nations publication, Sales No. E.16.XI.7), have been revised owing to a statistical adjustment processed by UNODC. The Government of Mexico does not validate any opium production estimates. The production figures will be presented once yield data from the joint Mexico/UNODC project entitled "Monitoring of the illicit cultivation on Mexican territory" become available. Opium production figures estimated by UNODC for 2015–2017 are based on: (a) the area under cultivation, established by the joint project of the Government of Mexico and UNODC; (b) yield data, based on yield studies conducted by the United States in Mexico over the period 2001–2003. The opium production figures shown for 2015–2017 are preliminary and, for methodological reasons, are not comparable with the production figures over the period 1998–2014.*

[f] *Owing to the late timing of the monitoring activities in 2013, the survey may not have captured illicit cultivation in this year in its entirety.*

[g] *Bound of the statistically derived confidence interval, with the exception of 2015. The figures for 2015 represent independently derived upper and lower estimates; the midpoint was used for the calculation of the global total.*

[h] *Estimates for 2014, 2015 and 2018 include estimates for Kayah and Chin states. National estimates for these years are therefore not directly comparable with the other years.*

TABLE 7 Global manufacture of heroin from global illicit opium production, 2007–2018 (tons)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total potential opium production	8,091	6,841	4,953	4,730	6,983	4,831	6,810	7,723	4,771	6,180	*10,420*	*7,790*
Potential opium not processed into heroin	3,078	2,360	1,680	1,728	3,400	1,850	2,600	2,450	1,360	2,510	*1,100-1,400*	*1,225-1,525*
Potential opium processed into heroin	5,012	4,481	3,273	3,002	3,583	2,981	4,210	5,273	3,411	3,670	*9,020-9,320*	*6,265-6,565*
Total potential heroin manufacture	686	600	427	383	467	377	555	542	327	388	*692-1042*	*487-737*

Notes: The calculation shows the potential amount of heroin that could have been manufactured out of the opium produced in a given year; it does not take into account changes in opium inventories, which may add to or reduce the amount of heroin entering the market in that year. Afghanistan and Myanmar are the only countries for which the proportion of potential opium production not converted into heroin within the country is estimated. For all other countries, for the purposes of this table, it is assumed that all opium produced is converted into heroin.

The amount of heroin produced from Afghan opium is calculated using two parameters that may change: (a) the amounts of opium consumed as raw opium in the region; and (b) the conversion ratio into heroin. The first parameter's estimate is based on consumption data in Afghanistan and neighbouring countries. For the second parameter, from 2005 to 2013, a conversion ratio of opium to morphine/heroin of 7:1 was used, based on interviews conducted with Afghan morphine/heroin "cooks", on an actual heroin production exercise conducted by two (illiterate) Afghan heroin "cooks", documented by the German Bundeskriminalamt in Afghanistan in 2003 (published in Bulletin on Narcotics, vol. LVII, Nos. 1 and 2, 2005, pp. 11–31), and United Nations Office on Drugs and Crime (UNODC) studies on the morphine content of Afghan opium (12.3 per cent over the period 2010-2012, down from 15 per cent over the period 2000-2003). Starting from 2014, a different approach to the conversion was adopted, reflecting updated information on morphine content and a different method for taking purity into account. The revised approach uses a ratio of 18.5 kg of opium for 1 kg of 100 per cent pure heroin base (see Afghanistan Opium Survey 2014, UNODC, November 2014). This translates into a ratio of 9.2–12.9 kg (range: 9-14 kg) of opium for 1 kg of export-quality heroin of 50–70 per cent purity. For more details, see "Afghanistan Opium Survey 2017 – Challenges to sustainable development, peace and security" (UNODC, May 2018).

The amount of heroin produced in Myanmar in 2018 was calculated by subtracting the estimated unprocessed opium for consumption from the total opium production and using a conversion factor of 10:1. The unprocessed opium in Myanmar was estimated to be 125 tons in 2018, based on the total unprocessed opium in East Asia (TOCTA EAP report, 2013) and considering the relative cultivation levels of Lao PDR and Myanmar. For further information, please refer to the Methodology chapter (section 4.3) of the Myanmar Opium Survey 2018 (UNODC, January 2019).

For countries other than Afghanistan, a "traditional" conversion ratio of opium to heroin of 10:1 is used. The ratios will be adjusted when improved information becomes available. Figures in italics are preliminary and may be revised when updated information becomes available.

TABLE 8 Global illicit cultivation of coca bush, 2007–2017 (hectares)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Bolivia (Plurinational State of)	28,900	30,500	30,900	31,000	27,200	25,300	23,000	20,400	20,200	23,100	24,500
Colombia [a]	99,000	81,000	73,000	62,000	64,000	48,000	48,000	69,000	96,000	146,000	171,000
Peru [b]	53,700	56,100	59,900	61,200	64,400						
Peru [c]					62,500	60,400	49,800	42,900	40,300	43,900	49,900
Total	**181,600**	**167,600**	**163,800**	**154,200**	**155,600** [d]	**133,700**	**120,800**	**132,300**	**156,500**	**213,000**	**245,400**

Sources: Plurinational State of Bolivia: national illicit crop monitoring system supported by the United Nations Office on Drugs and Crime (UNODC). Colombia: national illicit crop monitoring system supported by UNODC. Peru: national illicit crop monitoring system supported by UNODC.

Note: Different area concepts and their effect on comparability were presented in the World Drug Report 2012 (United Nations publication, Sales No. E.12.XI.1) (p. 41-42). Efforts to improve the comparability of estimates between countries continue; since 2011 the net area under coca bush cultivation on the reference date of 31 December was estimated for Peru, in addition to Colombia. The estimate presented for the Plurinational State of Bolivia represents the area under coca cultivation as interpreted on satellite imagery.

[a] *Net area on 31 December.*
[b] *Figures represent the area under coca cultivation as interpreted on satellite imagery.*
[c] *Net area on 31 December, deducting fields eradicated after satellite imagery was taken.*
[d] *The global coca cultivation figure was calculated with the "area as interpreted on satellite imagery" for Peru in 2011.*

TABLE 9 Reported eradication of coca bush, 2008–2017

	Method of eradication	Unit	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Bolivia (Plurinational State of)	manual	hectare	5,484	6,341	8,200	10,509	11,044	11,407	11,144	11,020	6,577	7,237
Colombia	manual	hectare	96,003	60,565	43,804	35,201	30,456	22,121	11,703	13,473	17,642	52,001
	spraying	hectare	133,496	104,772	101,940	103,302	100,549	47,052	55,532	36,494	0	0
Peru	manual	hectare	10,143	10,025	12,033	10,290	14,171	23,785	31,205	35,868	30,150	25,784
Ecuador	manual	hectare	12	6	3	14	..	..	..	..	..	..
		plants	152,000	57,765	3,870	55,030	122,656	41,996	15,874	45,266	20,896	10,100

Source: United Nations Office on Drugs and Crime annual report questionnaire and government reports.

Note: The totals for Bolivia (Plurinational State of) and Peru include voluntary and forced eradication. Reported eradication refers to the sum of all areas eradicated in a year, including repeated eradication of the same fields. Two dots indicate that data are not available.

TABLE 10 Potential manufacture of 100 per cent pure cocaine, 2007–2017 (tons)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Bolivia (Plurinational State of)	*104*	*113*	..	..	..	..	..	..	..	..	..
Colombia	683	471	488	424	384	333	290	442	646	1,053	1,379
Peru	*290*	*302*	..	..	..	..	..	..	..	..	..
Total based on "old" conversion ratios[a]	**1,077**	**886**	**920**	**862**	**815**	**738**	**662**	**746**	**936**	**1,378**	**1,743**
Total based on "new" conversion ratios[a]	***1,317***	***1,143***	***1,188***	***1,134***	***1,090***	***997***	***902***	***943***	***1,124***	***1,586***	***1,976***

Sources: Plurinational State of Bolivia: own calculations based on coca leaf yield surveys by the United Nations Office on Drugs and Crime (UNODC) (Yungas de La Paz) and scientific studies by the Drug Enforcement Administration of the United States of America (Chapare). Colombia: UNODC/Government of Colombia. Peru: own calculations based on coca leaf to cocaine conversion ratio from scientific studies by the Drug Enforcement Administration. Detailed information on the ongoing revision of conversion ratios and cocaine laboratory efficiency is available in the World Drug Report 2010 (United Nations publication, Sales No. E.10.XI.13), p. 249.

[a] *Conversion of areas under coca cultivation into coca leaf and then into cocaine hydrochloride, taking yields, amounts of coca leaf used for licit purposes and cocaine laboratory efficiency into account.*

Notes: Owing to a lack of updated conversion factors in Bolivia (Plurinational State of) and Peru, no final estimates of the level of cocaine production can be provided.

With respect to data published in the World Drug Report 2016 (United Nations publication, Sales No. E.16.XI.7), the following amendments have been made: (a) data for Colombia (2005-2008) have been revised in order to ensure a consistent implementation of revisions to the methodology, affecting the way coca production is calculated, for the entire time series 2005-2015 (for details, see Colombia Coca Cultivation Survey Report 2014 (UNODC, 2015) and Colombia Survey of territories affected by illicit crops 2015, Annex 3 (UNODC 2016)); (b) totals for 2009-2012 based on "old" and "new" conversion ratios have been revised to rectify minor inaccuracies in data processing.

Figures in italics are subject to revision. Two dots indicate that data are not available. Information on estimation methodologies and definitions can be found in the online methodology section of the World Drug Report 2019.

TABLE 11 Cannabis cultivation, production and eradication, latest year available from the period 2012–2017

Year	Country	Product	Outdoors/ indoors	Area cultivated (ha)	Area eradicated (ha)	Harvestable area (ha)	Production (tons)	Plants eradicated	Sites eradicated
2012	Afghanistan	resin	outdoors	10,000			1,400		
2017	Albania	herb	indoors					7,766	
2016	Albania	herb	outdoors					2,536,288	5,205
2017	Albania	herb	outdoors					66,927	500
2014	Algeria	resin	outdoors					2,522	
2016	Armenia	herb	outdoors	0.50 [a]	0.50	0.00		757	20
2017	Armenia	herb	outdoors	0.50 [a]	0.50	0.00		2,547	21
2016	Australia	herb	indoors					31,266	408
2017	Australia	herb	indoors					78,310	433
2016	Australia	herb	outdoors					22,257	1,021
2017	Australia	herb	outdoors	1.00 [a]	1.00	0.00		31,431	948
2015	Austria	herb	outdoors	3.00 [a]	3.00	0.00			
2013	Azerbaijan	herb	outdoors	23.95 [a]	23.95	0.00	263.96	8,469	151
2014	Azerbaijan	herb	outdoors	17.50 [a]	17.50	0.00		14,889	195
2017	Azerbaijan	herb	outdoors	0.25 [a]		0.25		336,791	
2015	Bahamas	herb	outdoors					17,270	
2012	Bangladesh	herb	outdoors					39,848	
2013	Bangladesh	herb	outdoors					35,012	
2014	Bangladesh	herb	outdoors					35,988	
2015	Bangladesh	herb	outdoors					39,967	
2016	Bangladesh	herb	outdoors					47,104	
2016	Belarus	herb	indoors						28
2017	Belarus	herb	indoors						32
2016	Belarus	herb	oudoors		123.80				1,945
2017	Belarus	herb	oudoors		125.90				2,283
2015	Belgium	herb	indoors					345,518	1,164
2017	Belgium	herb	indoors					415,728	1,175
2015	Belgium	herb	outdoors					4,885	93
2017	Belgium	herb	outdoors					848	59
2015	Belize	herb	outdoors					50,897	
2016	Bolivia (Plurinational State of)	herb	outdoors		14.60				35

Year	Country	Product	Outdoors/ indoors	Area cultivated (ha)	Area eradicated (ha)	Harvestable area (ha)	Production (tons)	Plants eradicated	Sites eradicated
2017	Bolivia (Plurinational State of)	herb	outdoors		14.00				52
2016	Bosnia and Herzegovina	herb	indoors		39.00				
2017	Bosnia and Herzegovina	herb	indoors					1	1
2016	Bosnia and Herzegovina	herb	outdoors		1,680.00				
2017	Bosnia and Herzegovina	herb	outdoors	0.02 [a]	0.02	0.00		539	53
2014	Brazil	herb	outdoors		44.01			1,364,316	
2017	Brazil	herb	outdoors		117.51			1,910,451	604
2015	Bulgaria	herb	indoors					323	
2015	Bulgaria	herb	outdoors				37.77	9,488	
2017	Central African Republic	herb	outdoors	130.00	60.00	55	10.00	250,000	22
2016	Chile	herb	indoors					26,988	2,740
2017	Chile	herb	indoors					50,414	2,408
2016	Chile	herb	outdoors					58,950	264
2017	Chile	herb	outdoors					194,694	202
2016	China	herb	outdoors		9.80			1,390,000	
2016	Colombia	herb	outdoors		135.00				
2017	Colombia	herb	outdoors		173.71				
2016	Costa Rica	herb	indoors					678	5
2017	Costa Rica	herb	indoors						2
2016	Costa Rica	herb	outdoors		17.59			2,122,244	201
2017	Costa Rica	herb	outdoors						215
2016	Côte d'Ivoire	herb	outdoors					5	
2017	Côte d'Ivoire	herb	outdoors		0.25				1
2016	Czechia	herb	indoors					53,549	229
2017	Czechia	herb	indoors					50,925	305
2016	Czechia	herb	outdoors					4,111	
2017	Czechia	herb	outdoors					3,467	
2015	Denmark	herb	indoors/out-doors					14,560	97
2016	Denmark	herb	indoors/out-doors					13,217	105
2017	Denmark	herb	indoors/out-doors					34,801	65
2014	Dominican Republic	herb	outdoors	6.00 [a]	6.00	0.00	0.21	111	8
2016	Ecuador	herb	outdoors					224	34

Year	Country	Product	Outdoors/ indoors	Area cultivated (ha)	Area eradicated (ha)	Harvestable area (ha)	Production (tons)	Plants eradicated	Sites eradicated
2017	Ecuador	herb	outdoors					397	10
2015	Egypt	herb/resin	outdoors		140.00				
2017	Egypt	herb/resin	outdoors		126.00				
2014	Eswatini	herb	outdoors	1,500.00	1,069.50	430.50		3,000,000	210
2017	Georgia	herb	indoors		0.01			186	91
2017	Georgia	herb	outdoors	0.02 [a]	0.02	0.00		93	19
2016	El Salvador	herb	outdoors			1.00		227	25
2014	France	herb	outdoors					158,592	837
2015	Germany	herb	indoors					135,925	786
2017	Germany	herb	indoors					85,226	573
2015	Germany	herb	outdoors					9,136	127
2017	Germany	herb	outdoors						95
2016	Greece	herb	indoors					16,554	
2017	Greece	herb	indoors					19,498	
2016	Greece	herb	oudoors					39,151	
2017	Greece	herb	oudoors					27,409	
2016	Guatemala	herb	outdoors		9.00			3,138,298	427
2017	Guatemala	herb	outdoors	3.50 [a]	3.81		1.61	6,033,345	150
2015	Guyana	herb	outdoors	20.00	9.40	10.60	1,000.00	419,700	19
2016	Honduras	herb	indoors					7	2
2016	Honduras	herb	outdoors					24,253	19
2017	Honduras	herb	outdoors	59.58 [a]	59.59	0.00			
2016	China, Hong Kong SAR	herb	indoors					329	1
2016	Hungary	herb	indoors					5,000	3
2016	Hungary	herb	outdoors					2,000	20
2013	Iceland	herb	indoors					6,652	323
2016	India	herb	outdoors		3,414.74				
2017	India	herb	outdoors		3,445.90			6,687,376	
2016	Indonesia	herb	outdoors	482.00 [a]	482.00	0.00			
2017	Indonesia	herb	outdoors	89.00 [a]	89.00	0.00		738,020	14
2016	Ireland	herb	indoors					7,273	
2017	Ireland	herb	indoors					9,046	50
2017	Italy	herb	indoors					56,125	1,161
2017	Italy	herb	outdoors					209,510	401

Year	Country	Product	Outdoors/ indoors	Area cultivated (ha)	Area eradicated (ha)	Harvestable area (ha)	Production (tons)	Plants eradicated	Sites eradicated
2014	Italy	herb	indoors					51,534	639
2014	Italy	herb	outdoors					70,125	1,134
2012	Jamaica	herb	outdoors					456	382
2016	Kazakhstan	herb	outdoors	18.00 [a]	18.00	0.00		170,000	202
2017	Kazakhstan	herb	outdoors	12.30 [a]	12.30	0.00		930,774	91
2016	Kenya	herb	outdoors	12.00				8,747	46
2017	Kenya	herb	outdoors		0.10			4,662	
2015	Kyrgyzstan	herb	outdoors	5,014.00		5,014.00			
2016	Latvia	herb	indoors					557	35
2017	Latvia	herb	indoors					798	34
2016	Latvia	herb	outdoors					78	6
2017	Latvia	herb	outdoors					66	15
2015	Lebanon	herb	outdoors	3,500.00		3,500.00			
2017	Lebanon	herb	outdoors	40,772.00					
2016	Lithuania	herb	indoors						4
2017	Lithuania	herb	indoors						8
2017	Lithuania	herb	outdoors						7
2015	Madagascar	herb	outdoors		11.00			21,325	
2017	Madagascar	herb	outdoors		9.00			57,708	
2013	Malta	herb	indoors					27	
2016	Mexico	herb	outdoors		5,478.42		6,574.1		38,432
2017	Mexico	herb	outdoors		4,193.34		5,032.0		34,523
2013	Mongolia	herb	outdoors	15,000.00	4,000.00	11,000.00		4,000	4,000
2016	Morocco	plant	outdoors	47,000.00	395.00	46,605.00			
2017	Morocco	plant	outdoors	47,500.00	523.00	46,977.00			
2016	Morocco	herb	outdoors				35,652.83		
2017	Morocco	herb	outdoors				35,702.90		
2016	Morocco	resin	outdoors				713.00		
2017	Morocco	resin	outdoors				714.06		
2014	Myanmar	herb	outdoors	15.00	10.00	5.00			3
2016	Netherlands	herb	indoors					994,068	5,856
2017	Netherlands	herb	indoors					883,163	5,538
2016	New Zealand	herb	indoors					18,903	607
2017	New Zealand	herb	indoors					19,992	

Year	Country	Product	Outdoors/ indoors	Area cultivated (ha)	Area eradicated (ha)	Harvestable area (ha)	Production (tons)	Plants eradicated	Sites eradicated
2016	New Zealand	herb	outdoors					104,725	
2017	New Zealand	herb	outdoors					19,559	
2014	Nicaragua	herb	outdoors		0.30		1,507.00	3,014	30
2016	Nigeria	herb	outdoors		718.78				65
2017	Nigeria	herb	outdoors		317.12				
2015	Norway	herb	indoors		0.04			4,000	30
2013	Panama	herb	indoors	0.50 [a]	0.50	0.00		37	2
2013	Panama	herb	outdoors	10.50 [a]	10.50	0.00		78,633	2
2016	Paraguay	plant	outdoors	1,298.50 [a]	1,298.50	0.00		5,656,266	4
2017	Paraguay	plant	outdoors		1,462.00			36,550,000	
2016	Paraguay	herb	outdoors				1,298.50		
2016	Paraguay	resin	outdoors				1.15		
2016	Peru	herb	outdoors		87.83			1,429,749	
2017	Peru	herb	outdoors		61.30			4,671,387	47
2016	Philippines	herb	outdoors		8.67			24,635,153	337
2017	Philippines	herb	outdoors		4.82			221,035	27
2016	Poland	herb	indoors					146,755	1,403
2017	Poland	herb	indoors					448	10
2016	Poland	herb	indoors/ outdoors					4,585	219
2017	Poland	herb	indoors/ outdoors						54
2017	Portugal	herb	indoors/ outdoors					22,910	158
2013	Republic of Korea	herb	outdoors					8,072	
2014	Republic of Moldova	herb	outdoors	100.00	59.00	41.00	10,000.00	200,548	
2017	Republic of Moldova	herb	outdoors	0.15	2.57			257,236	
2014	Republic of Moldova	herb	indoors		41.00				
2016	Romania	herb	indoors					1,433	41
2017	Romania	herb	indoors					1,875	46
2016	Romania	herb	outdoors		6.99				42
2017	Romania	herb	outdoors		1.90			4,905	32
2016	Russian Federation	herb	indoors		0.66				788
2017	Russian Federation	herb	indoors		0.87				1,990
2016	Russian Federation	herb	outdoors	7.61 [a]	7.61	0.00	68.64		1,143

Year	Country	Product	Outdoors/ indoors	Area cultivated (ha)	Area eradicated (ha)	Harvestable area (ha)	Production (tons)	Plants eradicated	Sites eradicated
2017	Russian Federation	herb	outdoors	159.00 [a]	159.00	0.00	30.07		5,379
2015	Serbia	herb	outdoors				0.05		
2013	Sierra Leone	herb	outdoors	190.00		190.00		190	3
2016	Slovakia	herb	indoors					385	
2017	Slovakia	herb	outdoors	2.00 [a]	2.00	0.00		2,299	31
2014	Slovenia	herb	indoors					9,223	118
2017	Slovenia	herb	indoors					10,259	78
2014	Slovenia	herb	outdoors					1,844	
2015	Spain	herb	indoors					244,772	108
2015	Spain	herb	outdoors					135,074	44
2014	Sudan	herb	outdoors	8.00 [a]	8.00	0.00	345.00		
2017	Sudan	herb	outdoors	1,250.00 [a]	1,250.00	0.00	205.00		100
2014	Sweden	herb	indoors					10,000	56
2015	Sweden	herb	outdoors				182.00		
2017	Sweden	herb	outdoors					5,100	44
2016	Switzerland	herb	indoors					11,386	83
2017	Switzerland	herb	indoors					71,750	
2012	Tajikistan	herb	outdoors					2,180,121	
2016	Thailand	herb	outdoors	1.00 [a]	1.00	0.00	7.50		1
2015	Trinidad and Tobago	herb	outdoors		0.31			375,925	58
2012	Uganda	herb	outdoors	150.00	88.00	62.00			5
2016	Ukraine	herb	outdoors	91.00 [a]	91.00	0.00			
2017	Ukraine	herb	outdoors		166.90			4,600,000	
2016	United States of America	herb	indoors					406,125	1,865
2017	United States of America	herb	indoors					303,654	1,399
2016	United States of America	herb	outdoors					4,940,596	5,513
2017	United States of America	herb	outdoors					3,078,418	4,062
2016	Uruguay	herb	indoors					661	
2017	Uruguay	herb	indoors					1,926	
2016	Uzbekistan	herb	outdoors	0.20 [a]	0.20	0.00			586
2017	Uzbekistan	herb	outdoors	0.20 [a]	0.20	0.00			618
2015	Viet Nam	herb	oudoors		1.00				

Source: United Nations Office on Drugs and Crime annual report questionnaire, government reports and and international narcotics control strategy reports of the United States of America.

[a] *Area identified by the authorities for eradication.*

GLOSSARY

amphetamine-type stimulants — a group of substances composed of synthetic stimulants controlled under the Convention on Psychotropic Substances of 1971 and from the group of substances called amphetamines, which includes amphetamine, methamphetamine, methcathinone and the "ecstasy"-group substances (3,4-methylenedioxymethamphetamine (MDMA) and its analogues).

amphetamines — a group of amphetamine-type stimulants that includes amphetamine and methamphetamine.

annual prevalence — the total number of people of a given age range who have used a given drug at least once in the past year, divided by the number of people of the given age range, and expressed as a percentage.

coca paste (or coca base) — an extract of the leaves of the coca bush. Purification of coca paste yields cocaine (base and hydrochloride).

"crack" cocaine — cocaine base obtained from cocaine hydrochloride through conversion processes to make it suitable for smoking.

cocaine salt — cocaine hydrochloride.

drug use — use of controlled psychoactive substances for non-medical and non-scientific purposes, unless otherwise specified.

fentanyls — fentanyl and its analogues.

new psychoactive substances — substances of abuse, either in a pure form or a preparation, that are not controlled under the Single Convention on Narcotic Drugs of 1961 or the 1971 Convention, but that may pose a public health threat. In this context, the term "new" does not necessarily refer to new inventions but to substances that have recently become available.

opiates — a subset of opioids comprising the various products derived from the opium poppy plant, including opium, morphine and heroin.

opioids — a generic term that refers both to opiates and their synthetic analogues (mainly prescription or pharmaceutical opioids) and compounds synthesized in the body.

problem drug users — people who engage in the high-risk consumption of drugs. For example, people who inject drugs, people who use drugs on a daily basis and/or people diagnosed with drug use disorders (harmful use or drug dependence), based on clinical criteria as contained in the *Diagnostic and Statistical Manual of Mental Disorders* (fifth edition) of the American Psychiatric Association, or the *International Classification of Diseases and Related Health Problems* (tenth revision) of WHO.

people who suffer from drug use disorders/people with drug use disorders — a subset of people who use drugs. Harmful use of substances and dependence are features of drug use disorders. People with drug use disorders need treatment, health and social care and rehabilitation.

harmful use of substances — defined in the *International Statistical Classification of Diseases and Related Health Problems* (tenth revision) as a pattern of use that causes damage to physical or mental health.

dependence — defined in the *International Statistical Classification of Diseases and Related Health Problems* (tenth revision) as a cluster of physiological, behavioural and cognitive phenomena that develop after repeated substance use and that typically include a strong desire to take the drug, difficulties in controlling its use, persisting in its use despite harmful consequences, a higher priority given to drug use than to other activities and obligations, increased tolerance, and sometimes a physical withdrawal state.

substance or drug use disorders — referred to in the *Diagnostic and Statistical Manual of Mental Disorders* (fifth edition) as patterns of symptoms resulting from the repeated use of a substance despite experiencing problems or impairment in daily life as a result of using substances. Depending on the number of symptoms identified, substance use disorder may be mild, moderate or severe.

prevention of drug use and treatment of drug use disorders — the aim of "prevention of drug use" is to prevent or delay the initiation of drug use, as well as the transition to drug use disorders. Once a person develops a drug use disorder, treatment, care and rehabilitation are needed.

REGIONAL GROUPINGS

The *World Drug Report* uses a number of regional and subregional designations. These are not official designations, and are defined as follows:

- East Africa: Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, South Sudan, Uganda, United Republic of Tanzania and Mayotte
- North Africa: Algeria, Egypt, Libya, Morocco, Sudan and Tunisia
- Southern Africa: Angola, Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia, Zimbabwe and Reunion
- West and Central Africa: Benin, Burkina Faso, Cabo Verde, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Sao Tome and Principe, Senegal, Sierra Leone, Togo and Saint Helena
- Caribbean: Antigua and Barbuda, Bahamas, Barbados, Cuba, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago, Anguilla, Aruba, Bonaire, Netherlands, British Virgin Islands, Cayman Islands, Curaçao, Guadeloupe, Martinique, Montserrat, Puerto Rico, Saba, Netherlands, Sint Eustatius, Netherlands, Sint Maarten, Turks and Caicos Islands and United States Virgin Islands
- Central America: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama
- North America: Canada, Mexico, United States of America, Bermuda, Greenland and Saint-Pierre and Miquelon
- South America: Argentina, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela (Bolivarian Republic of) and Falkland Islands (Malvinas)
- Central Asia and Transcaucasia: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan
- East and South-East Asia: Brunei Darussalam, Cambodia, China, Democratic People's Republic of Korea, Indonesia, Japan, Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, Philippines, Republic of Korea, Singapore, Thailand, Timor-Leste, Viet Nam, Hong Kong, China, Macao, China, and Taiwan Province of China
- South-West Asia: Afghanistan, Iran (Islamic Republic of) and Pakistan
- Near and Middle East: Bahrain, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, State of Palestine, Syrian Arab Republic, United Arab Emirates and Yemen
- South Asia: Bangladesh, Bhutan, India, Maldives, Nepal and Sri Lanka
- Eastern Europe: Belarus, Republic of Moldova, Russian Federation and Ukraine
- South-Eastern Europe: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, North Macedonia, Romania, Serbia, Turkey and Kosovo
- Western and Central Europe: Andorra, Austria, Belgium, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands, Norway, Poland, Portugal, San Marino, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland, Faroe Islands, Gibraltar and Holy See

Oceania (comprising four subregions):

- Australia and New Zealand: Australia and New Zealand
- Polynesia: Cook Islands, Niue, Samoa, Tonga, Tuvalu, French Polynesia, Tokelau and Wallis and Futuna Islands
- Melanesia: Fiji, Papua New Guinea, Solomon Islands, Vanuatu and New Caledonia
- Micronesia: Kiribati, Marshall Islands, Micronesia (Federated States of), Nauru, Palau, Guam and Northern Mariana Islands

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The *World Drug Report 2019* is again presented in five separate parts that divide the wealth of information and analysis contained in the report into individual reader-friendly booklets in which drugs are grouped by their psychopharmacological effect for the first time in the report's history.

Booklet 1 provides a summary of the four subsequent booklets by reviewing their key findings and highlighting policy implications based on their conclusions. Booklet 2 contains a global overview of the latest estimates of and trends in the supply, use and health consequences of drugs. Booklet 3 looks at recent trends in the market for depressants (including opioids, sedatives, tranquillizers and hypnotics), while Booklet 4 deals with recent trends in the market for stimulants (including cocaine, amphetamine-type stimulants and new psychoactive substances). Booklet 5 contains a review of recent trends in the market for cannabis and for hallucinogens. The section on cannabis also includes a review of the latest developments in the jurisdictions that have adopted measures allowing the non-medical use of cannabis.

As in previous years, the *World Drug Report 2019* is aimed at improving the understanding of the world drug problem and contributing towards fostering greater international cooperation for countering its impact on health, governance and security.

The statistical annex is published on the UNODC website: https://www.unodc.org/wdr2019

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